

SHERBURNE NWR  
NARRATIVE REPORT - 1967

NARRATIVE REPORT

for

1967

SHERBURNE NATIONAL WILDLIFE REFUGE

Princeton, Minnesota



Sher-180. 6/15/66. Aerial view west across Long Pond toward center of Sherburne Refuge. County Road 9 runs southwesterly and crosses St. Francis River at sharp bend. This is the site of the temporary refuge headquarters which will be established March 1, 1968.

SHERBURNE NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

1967

P E R S O N N E L

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Clerk- Typist.....Patricia A. Dunham  
Maintenance Foreman.....Wesley C. Thompson  
Maintenanceman.....Reuben A. Mathison

Temporary

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U. S. DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE

PRINCETON, MINNESOTA

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# SHERBURNE NATIONAL WILDLIFE REFUGE

Princeton, Minnesota

## NARRATIVE REPORT

Calendar Year 1967

### I. General

#### A. Weather Conditions - 1967

TABLE I

	Snowfall*	Precipitation This Month*	Normal**	Temperature	
				Maximum*	Minimum*
January	25.6"	3.48	.90	44	-34
February	20.0"	1.87	.90	42	-29
March	T	0.22	1.50	74	-18
April	0	1.06	2.00	69	5
May	0	1.49	3.70	82	16
June	0	7.83	4.50	85	41
July	0	2.14	3.30	91	39
August	0	2.25	3.70	91	34
September	0	0.69	2.40	82	30
October	0	1.07	2.00	85	12
November	T	0.05	1.50	60	-1
December	<u>T</u>	<u>0.70</u>	<u>.80</u>	<u>45</u>	<u>-27</u>
Annual Totals:	45.6	22.85	27.20	Extremes: 91	-34

\* Data obtained from official weather station maintained by Gordon Wold of rural Santiago,  $\frac{1}{2}$  mile north of the Refuge.

\*\* Data from Milaca, Minnesota weather station located 15 miles north of the Refuge.

As February drew to a close, a near record snow fall had occurred with 74+ inches having fallen. Forty-five inches fell during the first couple of months of 1967. Approximately 35 inches of snow were on the level by the time the early March thaw started.

It was not until mid-March that Battle Brook opened up to provide water for the migrating birds. The refuge finally opened up completely when all the ice was gone by April 1. Much of the surrounding landscape was flooded, and county roads 5, 21 and 42 were closed due to high water for four days. The spring flood was short lived, and water levels receded rapidly making it possible for farmers to get their crops in early.

Moisture was below normal for the second year in a row. Poorly spaced rain fall coupled with an initial lack of soil moisture resulted in poorer crops than usual on the sandy refuge soils. The old saying that "when it rains it pours" was certainly true this summer. Very little precipitation was received during the summer with the exception of June when over seven inches of rain fell during a three day period. This rain not only washed a few gullies, but it also raised the St. Francis River three feet over its normal level.

Summer continued on into fall, and still moisture was lacking; the same was true of early winter.

By mid-November, the refuge was frozen up once more.

#### B. Habitat Conditions

1. Water Water conditions were critical in early summer, but they improved tremendously after the late June rain. By the middle of August, water levels were again very critical with many of the type III and IV marshes beginning to dry up. Fall was just as harsh with its lack of moisture, and only a few of the type IV potholes contained water. All type V areas were beginning to develop extensive mud flat areas. Once refuge development is complete, these radical fluctuations can be nearly eliminated.

Table II shows the extremes in water fluctuations for the two USGS gauging stations on the refuge. The Santiago gauge is located where the St. Francis River enters Sherburne at the northwest corner, and the Eagle Lake gauge is located on the St. Francis just below the refuge outlet.

TABLE II  
Gauging Station

<u>Month</u>	<u>Santiago*</u>	<u>Eagle Lake*</u>
January	---	----
February	0.05'	0.37'
March	0.44'	1.03'

TABLE II(Continued)

<u>Month</u>	<u>Santiago*</u>	<u>Eagle Lake*</u>
April	0.55'	0.30'
May	1.40'	0.12'
June	3.13'	2.25'
July	0.20'	1.21'
August	0.31'	0.22'
September	0.06'	0.09'
October	0.02'	0.12'
November	0.09'	0.16'
December	---	--

\*Fluctuations are in feet.

Refuge freeze up occurred about two to three weeks later this year. A initial freeze up took place on November 1, and final freeze up occurred on November 15.

The refuge's first water control structure was placed on the outlet of what is known locally as Long Pond. This provides some insight as to what to expect when other controls are constructed - the water level here varied only a few inches during the entire drought period.

2. Food and Cover The food supply during normal and good years is not adequate to support too much in the way of wildlife, and during poor seasons such as those just past there is even less. This especially hurts those animals that in part have their diet supplemented through cultivated crops. Farmer produced crops were of a tremendous value to wildlife during the late 40's and early 50's, but have since decreased in value to wildlife because of the changes in farming practices. Corn is no longer the cash crop, and soybeans and rye now dominate the farm fields. Virtually no feed is obtained from these once winter's snow has settled into the area. When conditions are right, some browse is provided by the fall rye.

The majority of the refuge's share of corn has been left in the field to provide feed during the critical winter months. A total of 307.5 acres of corn was left standing in 20 agricultural units. To date, these fields are receiving excellent usage by deer and geese, but this crop fulfills several other functions besides providing food for wildlife. These food plots are scattered over the refuge, and they have done an excellent job of providing food and distributing the wildlife.

Cover is entirely adequate on the refuge during the winter, and no serious problems have been encountered with its management. In addition, 25 acres of alfalfa has been planted to provide additional nesting cover for pheasants and ducks.

The mast crop for 1967 was again rather spotty. However, much of the oak timber on the refuge is scrub oak, and as such produces little browse and no acorns. Hazel brush had a heavy nut crop, but nearly 100 percent of the nuts were wormy this year.

Wild rice production was far below last year's production. The decrease is probably due to a combination of carp and wide fluctuations in water levels. Unfortunately, as the case may be, the hordes of coots which descended upon the refuge, prior to the build up in ducks devoured nearly all the wild rice.

Sago pondweed has largely been replaced by coontail in the carp infested waters on the refuge. However, a number of other pond weeds such as floating leaf, large-leaf and flat-stemmed pondweed provide some waterfowl food. In addition, arrowhead, duck weeds, spike rush and other aquatic plants provide a considerable amount of waterfowl food.

## II. Wildlife

### A. Migratory Birds

1. Swans Swans have in the past used the refuge area as a migration stopping place. This has not taken place since the refuge was established in 1965. However, the first arrival of swans to the surrounding area was on March 30 when 12 were reported approximately 10 miles north-east of the refuge. According to the miscellaneous observations that drifted into our office, about 150 whistling swans passed through the area during the spring migration.

2. Ducks Seventeen mallards were spotted flying over the refuge while the area was still frozen tight from the winter's cold in mid-March. A week later, Battle Brook opened up from Elk Lake south for six miles, and the first pair of mallards using the refuge for the 1967 season were seen on March 24. A week later, wood ducks and goldeneyes were common, along with the mallard, in the open stretches of the St. Francis River. By early April, shovelers, green-winged teal, blue-winged teal, pintails and baldpates were common in the meadows now flooded by the spring melt. Mallards peaked at around 450 as did blue-winged teal and scaup. Wood ducks were down considerably from last year.

The first mallard brood was observed on May 23, and it appeared that 1967 would be a good year for waterfowl on Sherburne. Heavy rains came in June, and it is suspected that many nests were flooded. Obviously,

losses of this nature will continue until the refuge has the programed water control structures constructed and functioning.

Refuge production was estimated at 594 young produced with wood ducks accounting for 41%, blue-winged teal 35% and mallards 17%. This is an increase of nearly 50% over 1966.

The 1967 waterfowl season opened on the refuge on October 7 with approximately 2000 birds on the area. Much of the waterfowl habitat on the refuge exists on State and private land that has, as yet, not been purchased by the refuge. Hunting activity was hot and heavy and as a result the waterfowl population dropped to approximately 150 birds two weeks later. The refuge was able to install a slide gate water control structure on a 15 acre natural marsh which resulted in a 220 acre marsh after the gate was closed. This area was closed to hunting, and once the birds learned that they were safe here the population increased. For nearly three weeks prior to freeze up, this pond had a population of 1600 birds - primarily mallards.

One American coot brood was noted on the refuge this year. More of these birds will probably become common as the refuge develops. Coots began arriving in early April and built up to a population of 400. This number then dropped to around 10 birds until early September. By early October the coot had really moved in, and the refuge was host to 4000 hungry coots who rapidly depleted the available waterfowl foods.

Our first freeze up occurred in early November, but it was short lived as warm weather moved into the area. Final closing of the water areas took place in mid-November, and the last of the ducks had departed by the same date.

In summary, little has changed in the actual usage of the refuge area by waterfowl during the past two years since the establishment of the refuge. However, the addition of our one water control structure provided a place for more birds to remain longer after the opening of the waterfowl hunting season.

3. Geese Our first Canada geese arrived on March 15th - by truck from Wisconsin. This was the first attempt here at Sherburne to establish a captive breeding flock of giant Canada geese with the high hopes of establishing a free flying resident flock. The captive flock progress reports will be discussed further elsewhere.

The first wild Canada geese were reported on the 26th of March. No large flocks used the refuge water areas during the spring, but several birds stopped to "visit" the captive flock. One goose stayed with us all summer, and a family group of seven joined the captive birds in September. Some of the birds were banded. No report has been received

from the banding laboratory to date.

Apparently, no geese were using the refuge until just before the opening of the goose season. At this time a flock of 20 Canada's was on Rice Lake as well as a flock of 70 blue and snow geese. These moved on, and refuge goose use was rather limited.

Ten white-fronted geese were seen in the flooded meadows along County road number 5. This was the first year that any white-fronts had been reported.

Goose use days almost doubled for 1967 as compared to 1966. This increase in usage is attributed to the influence of our captive flock.

A summary of all use days follows:

		Use Days	
	Ducks	Geese	Coot
1966	174,670	840	104,405
1967	181,196	1,611	105,756

4. Other Marsh Birds American coot arrived in early April and built up to a population of 400. This number then dropped to around 10 birds until early September. By early October the coot had really moved in, and the refuge was host to 4000 hungry coots who rapidly depleted the available waterfowl foods. One coot brood was noted on Johnson Slough which is the first coot production recorded for the refuge. More of these birds will probably become common as the refuge develops.

Sora rails, great blue herons and bitterns were arriving steadily throughout the spring but no substantial population buildups ever occurred. However, 36 great blues were counted on Rice Lake during one period; this was the largest concentration ever noted during the summer period. A small nesting colony exists in Section 24 of Santiago Township.

Pied-billed, eared and horned grebes also migrate through the area. Pied-bills are a common nester on the project.

Last year the refuge was host to two pairs of common loons. One pair was using Bergerson Slough, and the other was using Mud Lake. Only the pair utilizing Mud Lake returned, and these birds did not raise any young during 1967.

#### B. Upland Game Birds

Hunters of the surrounding community have placed the pheasant on the list of "rare and endangered species." This is indeed true as only eight pheasants were noted on the refuge during this reporting period.

Last winter dealt rather harshly with the few remaining birds, and despite the restocking efforts of several local sportsman's clubs the pheasant population is nearly non-existent. One brood was observed during 1966, and one brood was again noted this year.

During the mid-fifties, pheasants were numerous within what is now Sherburne Refuge. Harsh winters along with changing land-use practices have probably attributed to the pheasant decline. Corn is no longer the primary farm cash crop. Soybeans and rye have largely replaced corn, and much of the over used cropland had been left idle because of poor production. Christmas tree plantations cover vast areas throughout the country side where sources of wildlife food were once available. These sources are now gone, and so are the pheasants. It is anticipated that the refuge farming program will help to provide some winter carry over food for the dwindling pheasant population.

Ruffed grouse looked good this year as they were up approximately 20% over last year. State drumming counts were up more than refuge counts, but refuge counts are much more restricted. The refuge population was estimated at 350 birds at the end of this reporting period. Hunters should enjoy a good grouse population next year.

#### C. Big Game Animals

The white-tailed deer is the only big game animal on the refuge. Sherburne refuge lies within that portion of the state where only shotguns are legal weapons. Large numbers of people hunt within the approved refuge boundaries. This year, on the first day, approximately 350 hunters were after approximately 200 deer. At the close of the five day season, an estimated 35 deer had been killed on the refuge. This kill in 1967 was somewhat less than in 1966. No snow cover was present during the season, coupled with the mild weather and heavy cover, deer were hard to find.

On January 27, 1967, an aerial census of the refuge was made with the assistance of Pilot-Biologist John Winship. Twenty-seven deer were observed on a 50% coverage. This is a useful method of locating deer concentration areas, and the survey provided us with some useful population estimates. The abundance of oak trees which retain their leaves makes it difficult to "pin-point" the population.

Refuge corn fields from the 1966 harvest season were used moderately by deer during January, February, March and April. Corn fields from the 1967 harvest are being used more than last year which is probably due to the lack of snow at the end of 1967. Rye fields were also well utilized by deer during the spring.

No black bear were reported this reporting period, but they have been present in the past and are observed just a few miles to the north.

D. Fur Animals, Predators, Rodents and other Mammals

1. Muskrat and Mink The refuge's Wildlife Inventory Plan was completed and approved during the mid summer months, and the first muskrat census was conducted on the area.

Six large marsh areas on the refuge were checked for rat houses and a total of 294 houses were counted. This data was expanded to cover the entire refuge, and the refuge population was estimated at 4,675 muskrats. In our estimation this is a rather large population of muskrats for the refuge. Good management would indicate a trapping program, but it is impossible to initiate this at the present time because of the patchwork pattern of refuge ownership. Also, state and private ownerships by in large constitute the majority of the marsh land on the refuge. A limited amount of trapping was done on the project, but this was more of a hobby exercise than a money making venture as rat hides were selling for 45¢.

Mink are not over abundant, as few tracks are seen. With a high muskrat population, we can expect an increase in the number of mink.

2. Raccoon, Striped Skunk and Foxes Raccoons, striped skunks, red foxes and grey foxes are all rather abundant predators occurring on the refuge. The extent to which these vermin are responsible for predation upon waterfowl and other wildlife species on this area is unknown.

There is some local interest in the trapping and hunting of raccoons and foxes as several people have hounds for this purpose. During the 1967 season one refuge resident reportedly trapped 55 raccoons and sold the pelts and carcasses for a total of \$4.50 per animal. This makes a nice additional income.

Only one grey fox has actually been sighted on the refuge, but local people would have us believe the grey fox is rather common.

3. Rabbits Rabbits are another species that for this refuge should be listed along with the pheasant on the list of "rare and endangered species." The cottontail in particular is especially lacking from the fauna of the refuge. Three rabbits were seen during the past summer which is an increase over the single sighting of 1966. This species was once quite abundant on the area, and it should become common again.

Whitetail jackrabbits are also at a low ebb although they are by far more numerous than the cottontail. A dozen or more sightings have been made during the past year.

E. Hawks, Eagles, Owls, Crows, Ravens and Magpies

Several hawk species are recorded for the refuge which includes the rough-legged, red-tailed, marsh, brood-winged and sparrow. One goshawk was sighted during the early part of the summer.



Between July 14 and July 21, the population of sparrow hawks on the refuge seemed to erupt as 125 of these birds were seen. Just why this surge in the sparrow hawk population occurred is unknown, but we have been advised that it could be the result of a large number of nests hatching at the same time. In any event, it was an interesting phenomenon.

During the 1967 Christmas Bird Count nine rough-legged hawks were observed on the refuge. This far exceeds the expected number of hawks on this area at this time of the year. In December, we had practically no snow cover, and apparently the hawks were doing quite well living off the field mice.

2. Eagles Last January an adult bald eagle was reported in the Mud Lake area of the refuge by a resident land owner. Three immature bald eagles were sighted this fall. Two of these were on the west Soule tract and the other was on the south refuge boundary. No eagle nests are present on the refuge as yet, but it is possible that in years to come we can expect some nesting activity.

3. Owls Great horned owls are relatively common on the project, and they are a constant threat to our captive goose flock. However, no losses have occurred yet.

Two snowy owls were reported on the refuge during February. This was a good year for these birds with all the snow cover. Several snowy owls were even reported in the Minneapolis-St. Paul area.

4. Crows During the winter months, very few crows use the refuge, and only a few are noted during this period. Spring migration is quite large with several thousand passing through this area. The summer population is around 100 birds.

#### F. Other Birds

Last year an interim bird list was started listing 109 birds. This year 19 additional species were added to the list. All observations have been provided by refuge personnel. Plans are being made to further this needed list by inviting the Minnesota Bird Club's members to the refuge. This group is very much interested in the Sherburne Refuge, and they will be able to provide us with some valuable data.

#### G. Fish

Carp continue to be the number one fish management problem now and will be in the years to come. Large numbers of these fish inhabit all waters of the refuge because of the extensive drainage complex of ditches which connects all marshes with the St. Francis River. Once development is complete, a carp eradication program can be initiated.

Considerable public use is received on the St. Francis River by local fishermen in their search for northern pike and sunfish.

#### H. Reptiles

Painted, Blandings and snapping turtles are common on the refuge. Turtle trappers are taking a fair number of snappers within the project, but not on federally owned land at the present time.

Bull snakes were to found everywhere last spring with several exceeding six feet in length. These reptiles could well pose a problem for waterfowl nest success such as is found at Crescent Lake NWR.

#### I. Disease

None to report.

### III. REFUGE DEVELOPMENT AND MAINTENANCE

#### A. Physical Development

The location of all major projects listed below are shown on the county map attached.

##### 1. County Road #5

The largest project of the year was the rebuilding of County Road 5 for 6.3 miles where it passes through the refuge. The Bureau contribution (\$50,000) to this joint project with the Sherburne County Highway Department was for the purpose of building up the roadbed to serve as a combination road and dike. Working conditions were generally ideal except for a little rain at the start, and it was completed and graveled in the contract period of 45 working days. The old road was subject to floods and bottomless holes. It now is an all weather road which the County anticipates blacktopping in a year or two.

##### 2. Farmsite Renovation

This project was initiated in 1966 when the first six farmsites were renovated. In 1967 an additional 38 sites were restored to a natural condition from their previous unsightliness, not to mention dangerous condition. Ten sites were done by force account and 28 by contract bulldozers.

The work consists of dozing in old foundations and basements and burying cement slabs and junk piles. The accumulated debris of many years is quickly disposed of in this manner. This eliminates dangerous holes, scrap, glass and other unsightly items.

The sites renovated in the previous year are then planted to conifers, wildlife shrubs and native grasses.

### 3. Maintenance Shop Development

The newly established Sherburne Refuge had absolutely no facilities for the storage or maintenance of equipment. Therefore, a nice set of buildings on the Milton Elveru Tract (144) were appropriated for this purpose. Located on the site were: two houses, barn, metal equipment shed, granary, corn crib and two smaller buildings.

During 1967 the following changes were made:

1. Access road was rebuilt and graveled.
2. All buildings were scraped and painted white.
3. A 32 X 74 foot pole building was constructed for storage.
4. The metal equipment building was converted to a maintenance shop by installation of a complete workshop, washroom and lunch area. This included sinking a well and plumbing in running water and sanitary facilities.
5. The barn was remodeled into a wintering facility for geese including an indoor pool and sorting pens.
6. Underground storage tanks were installed for gasoline and a cement slab poured at the service area. A fireproof oilhouse facility was remodeled nearby.
7. The granary was remodeled and mouseproofed.
8. The electrical wiring was rehabilitated in all buildings.
9. The capacity and serviceability of the sewage facilities for the two residences was improved.

### 4. Canada Goose Propagation Facilities

A seventeen acre goose pen with three subdivisions was constructed of treated wooden posts and six foot high woven wire. Also included are 16 breeding pens each 50 foot square. This represents 820 rods of woven wire and 20 rods of welded wire. Two natural wetlands were deepened to provide dependable ground water for the geese. Each breeding pen has its own small pool and a fibreglass nesting structure. The geese can be herded from pen to pen and to the wintering facilities to provide for "rotation of pastures".

### 5. Boundary Posting and Fencing

With the acquisition of substantial portions of exterior boundary, it became necessary to undertake fencing and posting with steel posts and three strands of barbed wire. All corners and stretch points were H-braced with treated wooden posts. During 1967, over 8.25 miles of this type of fence was constructed. While this mileage is not especially impressive by itself, it represents a tremendous amount of work. It frequently took longer to open up the boundary than to fence it. This points up the desirability of establishing exterior boundaries on roads.

The refuge also fenced the Orrock cemetery, located within the boundaries, with 4 foot high welded wire and steel posts. This was to cover a Bureau commitment made during the process of obtaining approval for the refuge. This commitment also guarantees access and that the cemeteries will not be flooded.

# GENERAL HIGHWAY MAP SHERBURNE COUNTY MINNESOTA







SCALE OF STATUTE MILES

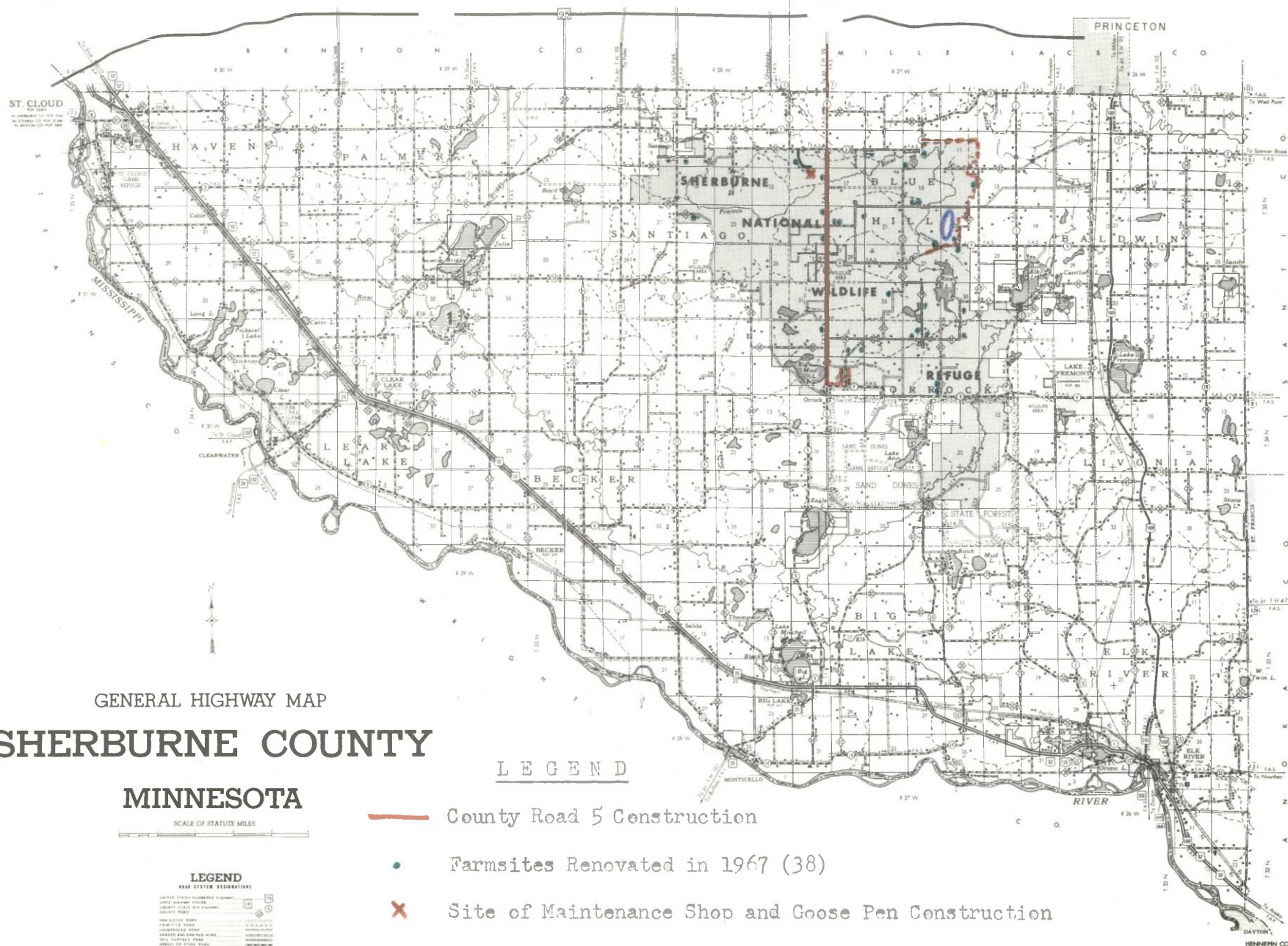
## LEGEND

ROAD SYSTEM DESIGNATIONS	
UNITED STATES HIGHWAY	(SHIELD)
STATE HIGHWAY	(CIRCLE)
COUNTY ROAD	(SQUARE)
PROTECTOR ROAD	(DIAGONAL)
GRAVELLED ROAD	(DOTTED)
GRAVEL AND ASPHALT ROAD	(DOTTED)
GRAVEL ROAD	(DOTTED)
GRAVEL OR FINE ROAD	(DOTTED)
RAILROAD	(THICK LINE)
RAILROAD CROSSING	(X)
RAILROAD OR DISCONTINUED ROAD	(THIN LINE)
RAILROAD CROSSING	(X)

JERRY L. SPENCER  
COUNTY HIGHWAY ENGINEER

## LEGEND

-  County Road 5 Construction
-  Farmsites Renovated in 1967 (38)
-  Site of Maintenance Shop and Goose Pen Construction
-  Road Rebuilt and Graveled
-  Boundary Fencing
-  Water Control and Impoundment



HENNEPIN CO.

## 6. Water Control

The first water control for the Sherburne Refuge was installed in March 1967. It consisted of a 40 inch Armco slide-gate on the outlet to a drained wetland (Long Pond). Spring runoff and natural springs filled the area and created 220 acres of prime habitat at the nominal cost of \$500.

### B. Planting

1. Acquatic and Marsh Plants None this year.

2. Trees and Shrubs

Ten Thousand Norway pines and one thousand black spruce were machine planted on the Havican and Adams tracts in the south part of the refuge in May. These were laid out in three row strips which contoured the tracts, plus numerous small clumps. A few trees were planted on each of the six farmsites renovated in 1966.

Survival was not good due to an extended dry period at planting time plus a mid-summer drought.

3. Upland Herbaceous Plants

The Soil Conservation Service cooperated in the establishment of 12 acres of experimental native grass seedings. Mr. John McDermid, Plant Materials Specialist of Bismarck, North Dakota supervised the plantings of several varieties of Big and Little Bluestem, Indiangrass and Switchgrass. Survival was excellent and plans have been laid to greatly expand this type of cover development in subsequent years. The soil, climate and character of the area are very well adapted to the re-establishment of native grasses.

4. Cultivated Crops

A big expansion was made in the cooperative farming program in 1967. Nine permittees farmed 17 cropland units totaling 489 acres. The crops were corn, fall rye and alfalfa plus 21 acres of soy beans.

Although this represents substantial progress in soil stewardship and food for wildlife, it actually is only a small portion of what needs to be accomplished. There are several thousand acres of former cropland on the refuge in a depleted condition. Some needs to be permanently retired and some should be kept in crop production. The wind, rain and weeds take a toll on those tracts which are not properly cared for.

Refuge personnel farmed 100.5 acres in 1967. This was done to provide additional food for wildlife, minimize losses through erosion and set an



example of good soil stewardship. Another reason was because permittee farmers are almost impossible to obtain in the vicinity. There always is someone willing to slap in a crop of soybeans, but this is poor management. The farmer with a well balanced operation is getting to be a scarce commodity. In future years the refuge will have to farm larger acreages, especially in the center of the refuge. The least desirable land will be retired to grasses but even this takes time and money.

A tabulation of the 1967 farming program appears on the following page.

Dry conditions in mid-summer greatly reduced prospects of a good corn crop. Fall rye is utilized only as a browse crop and the refuge share exchanged for an equal value of corn.

#### C. Collection and Receipts

Three surplus buildings sales were held in March, May and December of 1967. Bids were received on 77 structures located on 19 separate tracts. Surprisingly, the demand for buildings continues good. It was believed the market would be glutted after selling 132 last year. Receipts totaled \$6,922.46.

Refuge personnel are becoming more circumspect in listing buildings for sale. Those which are "junkers" are not listed and burned. This is the most efficient and practical way to dispose of them. The County Planning and Zoning Commission would like to restrict relocation of many of the buildings being sold but presently does not have legal authority.

#### D. Control Of Vegetation

Three species of weeds were primary targets in 1967, Tall Buttercup (Ranunculus acris), leafy spurge (Esula esula) and Canada thistle. MCP was used on the buttercup and was provided free of charge by the State Weed Inspector. The leafy spurge was effectively sprayed with Tordon. Several previously unnoticed patches were discovered and eliminated. The Canada thistle was sprayed with 2,4-D.

A Broyhill Sprayer was acquired just after the spraying season and looks capable of doing a good job.

E. Planned Burning Nothing to report.

#### F. Fire

Several substantial size fires occurred in 1967 which pointed up two things: (1) that the Sherburne Refuge is fortunate to have District Forester Brian Garvey stationed nearby, and (2) the refuge fire equipment is grossly inadequate. Mr. Garvey was present on every fire and used his equipment to good advantage. The Refuge now has improvised

COOPERATIVE FARMING - SHERBURNE NWR - 1967

	<u>Acres</u>				
Permittee & Farm Unit	Corn	Fall Rye	Alfalfa	Soy Beans	Total
Gerry Bender: A-1, A-2, A-10	25.0	17.0	-	-	42.0
Sunnyview Dairy: A-3, A-4 A-5, A-14, A-36, A-35	130.4	88.4	12.0	-	230.8
Bud Gesch: A-1, A-23	43.1	23.7	-	-	66.8
Lawrence Turnquist: A-22	10.7	9.2	-	-	19.9
Lloyd Stay: A-12	16.3	6.0	-	-	22.3
Bertil Anderson: A-20	15.7	22.6	-	-	38.3
Santiago Sportsmen's Club: A-11(N)	19.4	-	-	-	19.4
Palmer Renback: A-15	8.0	7.0	-	21.0	36.0
Guy Wilson: A-32	-	13.5	-	-	13.5
Sub Total	268.6	187.4	12.0	21.0	489.0

FORCE ACCOUNT FARMING - 1967

Tract Name Unit	Corn	Fall Rye	Alfalfa	Soy Beans	Total
H. Larson: A-17	9.0	10.0	-	-	19.0
H. Trebesch: A-23	15.0	11.1	3.7	-	29.8
Jacobson: A-34	8.9	8.4	9.6	-	26.9
K. Olson: A-30	6.0	10.0	-	-	16.0
M. Elveru: A-37	-	8.8	-	-	8.8
Sub Total	38.9	48.3	13.3	-	100.5
Total	307.5	235.7	25.3	21.0	589.5

surplus and borrowed material into an adequate unit but it still leaves much to be desired.

The big advantage refuge personnel have on local fires is their fast response and the enthusiasm with which they attack a fire. This fast, efficient team action has extinguished several fires before they grew to dangerous proportions.

<u>Date</u>	<u>Tract</u>	<u>Acres Burned</u>	<u>Type Burned</u>	<u>Suppressed by</u>	<u>Damage</u>
5/14/67	244	98	Marsh	M.C.F. & Ref.	\$218.00
5/23/67	172a	29	Marsh & Timber	MCF & Refuge	\$ 90.00
5/5/67	176a	.1	Marsh	Refuge	\$ 10.00
11/12/67	2	203	Marsh & Timber	MCF, Refuge & Princeton Fire Dep.	\$407.00
11/14/67	243	43	Marsh	MCF & Refuge	\$105.00

The Princeton Fire Department responds on call for larger fires. They are a well trained outfit and very effective.

#### IV. RESOURCE MANAGEMENT

##### A. Grazing

One permit was issued in 1967 at a nominal fee of \$5.00 covering on and off grazing of 0.4 acre by Oscar and Ole Hanson, owners of adjacent Tract 176. This area is a small but important part of their grazing operation and of no particular importance to the refuge. Cooperation here may facilitate future acquisition of their property.

##### B. Haying

None to date but as more alfalfa fields are coming under refuge administration, it will be necessary to set up haying permits following the end of the nesting season. This will allow a lush, second growth of alfalfa for migrant birds and native wildlife.

##### C. Fur Harvest

Under the present checkerboard Bureau ownership pattern, it is not practical to administer a fur trapping permit. It would cost more to post and patrol the areas than the share of fur would bring in. Beaver, muskrats, mink, weasel, fox, raccoon and skunk are present. Trappers from a wide area use the refuge.

##### D. Timber Removal

The Christmas tree management permits to Nan Conifer Co.(Sher-1) and Nelson's Tree Farms(Sher-2) remain in effect. They shear the trees



in June to increase marketability and cut the trees for the Christmas trade during October. The results are tabulated below.

Following the July 22, 1967 tornado a concerted effort was made to interest buyers in the damaged timber. Only one permit was issued to the Ratzlaff Lumber Co. and they were only interested in the white pine saw logs. No one else would take the rest for logs, pulp or even firewood.

The combined effect of Christmas tree management and the renovation of tornado damage by lumbering and clean-up operations should have a favorable effect on wildlife habitat in the south part of the refuge.

#### TIMBER SALES

Permit No.	Permittee	Type of Permit	Amount
1	Nan Conifer Co.	Christmas Trees	No removals
2	Nelson's Farms	Christmas Trees	\$320.00
5	Ratzlaff Lumber	Saw Logs	\$410.00

### V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

#### A. Progress Report

##### 1. Wood Duck Study

Approximately one-fourth of the Sherburne Refuge is covered by timber. Much of this is scrub oak, but there are numerous areas where it was assumed that wood ducks could find nesting sites. In order to determine the extent of wood duck nesting habitat its quality and ecology, a pilot study was initiated during the summer of 1967 utilizing the talents of our Wildlife Aid, Mr. Steve Ullrich.

Since this was a pilot study designed to help the refuge as well as our Wildlife Aid, our sampling method was based on our present knowledge of the wood duck habitat and not on purely statistical methods. Ten percent of the quarter sections on the refuge containing timber in each management unit was selected on the basis that this represented some of the better wood duck nest areas. From this 10 percent sample, a one percent random cruise was done on the basis of  $\frac{1}{4}$  acre circles. This cruise was designed to provide the following data: 1) tree density, 2) species abundance, 3) cavity density per tree species per acre and 4) cavity use history.

The results from this pilot study revealed some significant information. Following is a list of tree species on the refuge in order of their abundance: 1) red oak, 2) burr oak, 3) aspen, 4) pin oak and 5) American

elm. Over all densities varied from 64 red oak per acre to one American elm per acre. It was found that by far the most trees occurred in the 2-6" dbh class (scrub oak). However, the investigator stated that lone large trees were fairly prevalent everywhere.

Cavity data was obtained by physical examination of as many cavities as it was possible to reach. Red and pin oak had the most cavities while the second most abundant tree (burr oak) had practically no cavities. Cavities were most abundant in those trees with a dbh over 16 inches. The total number of cavities found per acre on the sample for all trees varied from 1.02 to 3.30. Obviously, not all cavities are considered to be useful as wood duck nest sites, and the number of suitable nesting cavities per acre (based on criteria provided by Grice, Daniel and Rogers 1965, The Wood Duck in Massachusetts) varied from 0.18 to 1.43. No woody nests were found.

Based on this pilot study, 23 wood duck boxes have been placed out on the refuge, and others are to be placed out in 1968. A tornado occurring during late July severely reduced the extent of the refuge's wood duck habitat by destroying 765 acres of hardwood timber.

Further studies will be carried out along these same lines in the years to come.

## 2. Socio-Economic Study

A socio-economic study entitled "A Study of the Effects of the Sherburne National Wildlife Refuge on the Residents of Sherburne County, Minnesota" was conducted by Mr. Robert Lynch, a graduate student from the University of Minnesota Anthropology Department. This study was done as part of a course requirement and not as material on which to base his doctorate dissertation.

The origin of this study began with Professor Luther Gerlach of the Anthropology Department who suggested a seminar in human ecology involving the departments of Botany and Zoology. It was professor William Marshall of the Zoology Department that proposed the Sherburne study, and final approval was coordinated through the Bureau of Sport Fisheries and Wildlife.

Because of the sampling techniques employed and the small samples taken, this study must only be considered a preliminary attempt to understand the reaction of the community involved in the development of a new national wildlife refuge.

Mr. Lynch started his research in the files of the Regional Office and at Refuge Headquarters. After the preliminary work, a questionnaire was developed to provide the masses of data for the body of his research. Basically, the questionnaire was designed to collect two types of material; 1) basic census data which would add up to a profile of the people interviewed, and 2) opinions and attitudes of the respondents on a variety of topics to the refuge.

The major investigator and his assistant spent approximately one month in the field and completed only 17 questionnaires which fell far below the number required to make the sample statistically valid.

It should be pointed out that this study was carried out under full approval by the Bureau, but absolutely no financial support was provided by the Bureau for very good reasons. Mr. Lynch stated that he was quite sure he experienced better rapport with the landowners when he told them he was working independently from the government.

The following is a summary of the more important information abstracted from Lynch's report:

General

1. The average age of landowners: males - 57, females - 51
2. Education level: 51% finished high school, 99% finished 8th grade
3. Ethnic background: 75% are of German or Scandinavian extraction
4. Average size of land ownership is 220 acres
5. Princeton, Minnesota is considered to be the primary business center.

Local Reactions

1. Most people heard of the proposed Sherburne Refuge 4 to 5 years ago or 1962-63.
2. For 60% of the people, news of the new refuge came from their neighbors.
3. However, 75% remembered there were meetings at the involved townhalls. (Letters had been sent out to all residents by the County Agent, and he also arranged the township meeting.)
4. The basic feeling of the people who would have to sell land but not move was; "the idea of a wildlife refuge was a good thing although they felt that it worked a hardship on long-term residents who had to move.
5. The basic feeling of those people opposed to the refuge was one of a sense of shock at what they termed unfairness and a lack of understanding for the individual.

Resistance Activity

1. Resistance activity to the refuge was considered by the people to be a legal one and not a political one. Therefore, the opposition was not in the form of an organized effort, but rather it was done on an individual basis.

Resident's Views of Bureau Policy

1. 70% of those interviewed understood that the refuge was to raise waterfowl.
2. 40% of the people felt that the federal government had the desire to preserve the land and natural resources for recreation, especially hunting for the city people.
3. People in general were in favor of the Bureau's objectives and the only objection was that the refuge was being put where it is.

Summary

Mr. Lynch's report brings out an important concept in the establishment of any federal project, and that is the very pertinent

one concerning the relationship between private "rights" and the "public good".

Again, this study is a pilot, and it in no way achieved the statistical validity that was intended. It is our feeling that much of the information gleamed from Lynch's report, as his evaluation of the data, is extremely biased. Plans are being made to encourage the University and/or Mr. Lynch to continue this study in greater depth to provide a much more worthwhile report of the actual situation.

## VI. PUBLIC RELATIONS

### A. Recreational Uses

Although there is no organized recreational program, the refuge does receive a considerable amount of use by sightseers, bird-watchers, game hunters, fishermen, canoeists and a variety of other activities. Many are now driving through just to see what's going on at the "Wildlife" as the refuge is locally known.

It is pleasant to report that schools and colleges are showing an interest in the refuge as an outdoor classroom. This aspect has much potential for increase.

The public use figures are shown on NR-6. It is estimated that visitor use increased 50% over last year.

### B. Refuge visitors

The handy location of the refuge office in downtown Princeton results in a continual flow of visitors. This is good when landowners, permittees and official visitors wish to do business but a headache when the person who wants to discuss the merits of his new shotgun drops in. Casual visits can be overdone, to the detriment of the refuge accomplishments.

The following persons are frequent callers at the Refuge office:

<u>Name</u>	<u>Title</u>	<u>Organization</u>	<u>Address</u>
Gordon "Bill" Jensen	Appraiser	BSF & W	Minneapolis
Jack Wolf	Appraiser	BSF & W	Minneapolis
Gene Sullivan	Area Game Mgr.	M.C.D.	Buffalo
John Kirkvold	Area Forester	M.F.S.	Cambridge
Phil Veith	Ass't Area Forester	M.F.S.	Cambridge
Brian Garvey	District Forester	M.F.S.	Zimmerman
Wayne Forsythe	Game Warden	M.C.D.	Big Lake
Dick Simmons	Game Warden	M.C.D.	Princeton
Don McShane	Game Warden	M.C.D.	Milaca
Geo. "Pat" Anderson	Co. Commissioner	Sherburne Co.	Princeton
John Thompson	Co. Commissioner	Sherburne Co.	Princeton
Milt Stensrud	Co. Commissioner	Sherburne Co.	St. Cloud
Russ Matchinsky	Co. Engineer	Sherburne Co.	Elk River

Other official visitors are found on the following list:

Date	Name	Title or Organization	Address	Purpose of Visit
1/4 - 1/14	Ralph Fries	Wetland Manager	Coleharbor, N.D.	Res. & Inventory
1/4	Don Gregg	Realty Specialist	Mpls.	Right-of-Way
1/11	Ella Kringlund	Co. Ext. Agent	Elk River	Information
1/26	Clayton Hart	S.C.S.	St. Cloud	Soil Maps
2/8	H. H. Dill	Chief Biologist	Mpls. R.O.	Goose Project
2/8	E.S. Crozier	Master Planner	Mpls. R.O.	Goose Project
3/1	Jim Stillings	Maintenanceman	Tamarac Ref.	Surplus Eqpt.
3/9	Jerry Kluempke	Tri-Cap Program	St. Cloud	Work projects
3/9	Jerry Nielson	Tri-Cap Program	St. Cloud	Work projects
3/20	Myron Lofgren	M. H. D.	Princeton	Safety Meeting
4/11	George Rice	WCCO-TV	Mpls.	TV film
4/11	Bob Sjolholm	WCCO-TV	Mpls.	TV film
4/11	Les Dundas	PR Specialist	Mpls. R.O.	TV film
4/20	Forrest Carpenter	Reg. Ref. Supr.	Mpls. R.O.	Inspection
4/20	Frank Martin	Asst Reg. Ref. Supr.	Mpls. R.O.	Inspection
4/20	Art Hughlett	Program Chief	C.O. Washington	Inspection
4/26	Barry Peterson	Bur. of Pub. Roads	St. Paul	Right-of-way
5/4	John McDermand	S.C.S.	Bismarck, N.D.	Native Grass
5/8	Nat. Resources Comm.	Ch. of Comm.	Mpls.	Tour
5/16	James Salyer	Biologist	C.O. Washington	Inspection
5/16	James Pullian	Biologist	C.O. Washington	Inspection
5/16	Bill Aultfather	Reg. Forester	Mpls. R.O.	Inspection
5/22	Clarence Morstad	Weed Insp.	Elk River	Weed Problems
5/31	Ray Collier	Dist Engr. USGS	K.C., Mo.	Topog. Maps
5/31	Jim Betz	Crew Chief USGS	Princeton	Topog. Maps
5/31	Alan MacKichen	MacKichen & Madsen Inc.	Grand Forks N.D.	P.R. Problem
5/31	Dave Stenseth	MacKichen & Madsen Inc.	Grand Forks N.D.	P.R. Problem
6/1	Jack Connor	Mpls Star	Mpls	Story
6/1	George Nelson	Game Protective League	St. Paul	Tour
6/5	Bob Lynch	U. of Minn.	Mpls.	Study
7/20-21	Dr. Bill Green	Upper Miss. Ref.	Winona	Inspection
8/11	Jack O'Konek	Pres. M.C.F.	Hill City	Tour
8/11	George Aschom	Green River Rd. Comm.	Lansing, Iowa	Tour
9/19	Emil Weiss	Ex-Pres. M.C.F.	Lakefield, Minn.	Tour
9/27	Ed Stevenson	Engineer	Mpls., R.O.	Inspection
9/27	Ray Wright	Engineer	Mpls., R.O.	Inspection
9/27	R. Ferguson	Engineer	Elk River	Inspection
10/16	Harold Simon	MCD Appraiser	Grand Rapids, Mich.	Exchange
10/25	Bob Johnson	Area Forester	Tamarac Ref.	Forestry Insp.
10/25	Al Johnson	Dist. Forester	Tamarac Ref.	Forestry Insp.
10/27	Chuck Griffith	C.E.O.	Mpls., R.O.	Pub. rel.
11/14-15	Denny Holland	Holla Bend NWR	Arkansas	Geese
11/14-15	Bob Stevens	Cross Creeks NWR	Tennessee	Geese
11/20	Bob Forder	Job Corps	Tamarac Ref.	Equipment
11/20	Gil Wickre	Job Corps	Tamarac Ref.	Equipment
11/22	6 School Admin.	Suburban Schools	Twin Cities	Tour
12/1	John Sanger	Botanist	U. of Minn.	Study possibilities

Date	Name	Title or Organization	Address	Purpose of Visit
12/7	Robley Hunt	Hennepin Co. Park Dept.	Maple Plain	Geese
12/7	Dick Olson	" " " "	" "	Geese
12/13	Marv Duncan	Pub. Use Specialist	Mpls., R.O.	Public Use
12/27	Bill Aultfather	Reg. Forester	Mpls., R.O.	Disease Control

### C. Refuge Participation

Refuge personnel were able to make a respectable coverage of the surrounding region to tell the "refuge story" and develop interest in conservation. Having two persons to spread the load helped considerably.

The following groups were handled by Assistant Manager Schranck:

Date	Organization	Town	Attendance	Program
2/1	Sher. Co. Cons. Club	Orrock	15	Talk
2/13	Sportsman's Club	Santiago	50	Talk
3/21	Four schools	St. Cloud	500	NWW Talk
3/22	H.S. Biology Classes	Elk River	100	NWW Talk
3/29	High School	Becker	250	NWW Program
4/1	Boy Scout Jamboree	St. Cloud	1000+	Slide Program
6/16	Elementary School	Princeton	120	Slide Program
6/19	4-H Club	Zimmerman	30	Tour
7/19	Conservation Class	St. Cloud	70	Slide Talk
9/11	Sportman's Club	Santiago	60	Slide Talk
10/4	Minn. Bird Club	Mpls.	30	Talk
10/24	Dist. Postmaster's	Aux. Zimmerman	16	Tour
10/28	H.S. Biology Class	Anoka	20	Tour

The following groups were handled by Manager Carlsen:

Date	Organization	Town	Attendance	Program
1/19	Conservation Unlimited	Anoka	20	Slide talk
2/2	Exchange Club	So. Mpls.	65	Slide Talk
2/14	Adult Cons. Class	St. Cloud	30	Talk
2/20	Farm Bureau	Princeton	20	Slide Talk
2/23	College Biology Class	St. John's U.	25	Slide Talk
3/13	Area Foresters	Cambridge	12	Program
3/13	Rural Sportsmen's Club	Santiago	75	Progress Report
3/14	Orrock Town Board	Orrock Twp	8	Discussion
3/14	Blue Hill Town Bd.	Blue Hill Twp	50	Discussion
3/21	Tri-Co. Cons. Club	Princeton	30	Movies-Talk
3/28	Junior High	Princeton	400	NWW Talk
3/30	High School	Big Lake	300	NWW Talk
4/13	Gyro Club	Mpls	30	Slide Program
4/18	Tri-Co. Cons. Club	Princeton	30	Movies
4/25	Gun Safety Class	Princeton	45	Talk
5/3	Sher. Co. Cons. Club	Becker	25	Progress Report
5/8	Nat. Resources Comm.	Mpls.	11	Tour
5/16	Rotary Club	St. Cloud	60	Slide Program
5/17	Beaverbrook Sportsmen	Robbinsdale	40	Slide program

<u>Date</u>	<u>Organization</u>	<u>Town</u>	<u>Attendance</u>	<u>Program</u>
5/27	Eagle Lake Imp. Assm,	Big Lake	45	Talk
6/12	Wright Co. Cons. Fed.	Buffalo	40	Slide Talk
6/16	State Convention of Campers & Hikers	Zimmerman	500	Talk
9/11	Sportsmans Club	Sauk Rapids	50	Slide-Talk
9/16	M.C.F. State Convention	Duluth	125	Slide-Talk
10/4	Sher. Co. Cons. Club	Orrock	40	Progress Report
10/18	Advanced Biology Class	Princeton	38	Tour
10/19	Lions Club	St. Cloud	55	Slide Talk
10/31	Lions Club	Hopkins	60	Slide Talk
11/22	School Adm.	Twin Cities	6	Tour

On March 6th Mr. Schranck was interviewed over radio station WJON, St. Cloud and gave a report on refuge activities.

During National Wildlife Week, an exhibit was placed in the window of the refuge office on the "main street" of Princeton in cooperation with the Tri-County Conservation Club. News articles and editorials were placed in all local papers. A ten minute program on National Wildlife Week was broadcast over radio station WKPM, Princeton.

On April 11, a color film report on the Sherburne Refuge was made by TV Editorialist George Rice of WCCO-TV. This was arranged for by Staff Specialist Lester Dundas of the Division of Refuges. The six minute color film was shown on "Spotlight on the News" at 6 PM on April 11.

Assistant Manager Schranck is a member of the Princeton Junior Chamber of Commerce. Mr. Carlsen is a member of the Princeton Lion's Club and on the Board of Directors of the Princeton Chamber of Commerce. Most meetings of the Minnesota Chapter of the Wildlife Society have been attended. Memberships are held in four local sportsmans clubs. and Mr. Carlsen is Program Chairman of the Tri-County Conservation Club of Princeton.

#### D. Hunting

Two small closed areas were established prior to the opening of hunting season. One was around the goose pen at the Maintenance Shop and the second was around the impoundment at Long Pond. Both were approximately one square mile each.

These two areas demonstrated conclusively the value of "refuge" to waterfowl. Previously all the ducks were blasted out of the country on opening weekend and subsequent activity was sufficient to maintain the void. The Long Pond Impoundment had abundant water, with adjacent cornfields and with the closure over 1600 mallards stayed there until freeze-up in mid-November. This is a modest start but does indicate what can be accomplished.

After their initial onslaught petered out, hunters quickly recognized the situation and set up a "firing line" along Co. Road 9 between Long Pond and Rice Lake. One of the persons frequently checked at this place was Dr. Robert K. Sommers, refuge landowner and President of the Refuge Opposition Committee!

The dry spell apparently ended as the first day of the 1967 duck season opened with a cold steady rain falling. The adverse weather did little to dampen the spirits of the duck hunters, and nearly every available marsh was surrounded.

Good numbers of ducks were present on the "refuge", and the population was estimated as follows:

Mallards	-	670	BWT	-	200
Blacks	-	20	Woodduck	-	200
Godwall	-	200	R-necked	-	100
Pintail	-	200	L. Scaup	-	20
GWT	-	200	Coot	-	4,000

Two blocks of blue and snow geese were sitting on the Oscar Hanson rye field while a small flock of Canada geese and another bunch of blue and snow geese were sitting on Rice Lake. Total geese were estimated at 95. Over eager hunters opened up the season on the geese using Hanson's rye field approximately 15 minutes early. This action triggered a series of events which resulted in everyone shooting before the season was legally opened. In summary, 3 geese were known to be killed out of these flocks. Second day hunting of geese was rather slim with only a dozen or so geese using the Rice Lake area - one of these was killed by Benny Hanson.

Bag limits varied considerably from area to area within the refuge. The hunters on Mud Lake did not kill too many ducks and most of the parties checked in this area had less than one duck per person. Durgin Slough was a "hot" area and most of the hunters were well rewarded. Shooting at Lake Josephine and Rice Lake was good with many of the hunters filling out.

Birds killed consisted mainly of blue and green winged teal and mallards. A few woodducks, pintails, ring-necked ducks and baldpates were also taken during the opening week-end.

The following is an estimate of the maximum number of cars present at the various access points on opening day:

Mud Lake Public Access:	15
Mud Lake Co. Rd. #5:	8
Lake Josephine:	12
Rice Lake Public Access:	23
Rice Lake-Ken Olson Area:	12
Durgin Slough:	10
	<hr/> 80



The 1967 shotgun deer season opened with no special regulations on the Sherburne Refuge at sunrise as stipulated by state law. Weather conditions favored the deer this year as there was no snow cover and temperatures were in the low 40's. During the first day, there was considerable shooting on the refuge, but few shots were fired on the following days. Deer were apparently content to stay in the swamps and heavy brush during this mild weather, and attempts to drive these areas proved unsuccessful for the hunters.

Pre-season population estimates were made on the basis of deer sightings made during the past weeks, and deer sign encountered during field activities. All in all, it appeared as though there were in fact fewer deer this year than last. A fact that could account for the lack of hunter success.

Refuge personnel(Carlsen, Schranck, Thompson and Elveru) did refuge patrol work during the opening day. Total efforts of all personnel produced a total of 21 deer checked. Approximately 8 of these were taken from the Sand Dunes State Forest. Total deer taken from the refuge is estimated at 35. This is a drastic drop from the 1966 season.

Car counts of hunting parties were made on the refuge during the first day.

Elveru	50 cars	150 hunters
Thompson	20 cars	60 hunters
Carlsen	25 cars	75 hunters
Schranck	<u>25 cars</u>	<u>75 hunters</u>
	120 cars	360 hunters

It is estimated that 360 hunters were using the refuge for deer hunting activities during the opening day. This works out to an average of 87 acres per hunter on the refuge. Obviously, there are a sufficient number of hunters using the refuge.

A voluntary deer checking station was run for the Minnesota Conservation Department by Carlsen and Schranck on the Bolin Tract(69). This was done to assist in evaluating the deer kill in the Sand Dunes State Forest. The station was manned from 10 AM until 3:30 PM. Eight deer were checked for the Forest and three from the refuge.

Hunting pressure during the second day of the season was much lighter, and few shots were fired. At 10 AM a fire developed near the center of the refuge. This ended hunter checking activity by refuge personnel, and hindered some of the hunting activity. It is highly possible that this fire was hunter caused. The fire was out by 5:30 PM and 203 acres of wildlife habitat were destroyed.

#### E. Violations

Due to the heavy hunter use of the refuge and the general disregard for

regulations, many violations occur which are not apprehended. The terrain presents enforcement problems as well as determining which hunter out of this mob committed a specific violation. Refuge personnel have not had the opportunity to receive law enforcement training either. Efforts to date have been directed to a patrol and checking operation.

The State Game Wardens with which refuge personnel work closely made numerous cases. Deer shining violations are common but with lenient courts it is felt necessary to limit apprehensions to those in the act of killing deer which restricts opportunities. Many wild rides in the dark following shiners have proven fruitless.

#### F. Safety

Safety meetings are held on the middle Monday of each month and discussions on specific situations occur daily on the job. The chairmanship for each meeting is rotated through the staff.

<u>Date</u>	<u>Topic</u>	<u>Chairman</u>	<u>Special Event</u>
1/16	Winter Driving Hazards	Mgr. Carlsen	
2/20	Highway Safety	Mgr. Carlsen	Movie "Signal Thirty"
3/20	Emergency accident treatment	Mgr. Carlsen	Talk by M. H. D. Patrolman Mike Lofgren
4/10	Fire fighting Methods	Speaker, Brian Garvey, State Forester	
5/22	Boating Safety	Ass't Mgr, Schranck	Talk
6/22	Safety in Home & Office	Dunham	Movie "Safest Township Anywhere"
7/17	Storm Safety	Elveru	Talk
8/21	Eye Safety	Ullrich	Talk
9/18	Safe Driving	Thompson	Talk
10/16	Equipment Safety	Mathison	Talk
12/1	Refuge Safety	Carlsen	Movie "Safety Everywhere, All the time"
12/18	Safety during the Holidays	Schranck	Talk

As of December 31, 1967, this station has operated 806 days without a lost time accident.

### VII. OTHER ITEMS

#### A. Items of Interest

##### 1. Personnel

Mrs. Marlene Helmen resigned as Clerk-typist on January 14, 1967 as her husband transferred to St. Cloud, Minnesota. Mrs. Patricia A. Dunham E.O.D. on January 16, 1967 and has capably and cheerfully fulfilled the duties.

Mr. Wesley C. Thompson and Reuben A. Mathison E.O.D. on April 4, 1967 as Maintenance men. Their appointments were converted to Career-Conditional July 16, 1967.

Other personnel appointments include:

<u>Name</u>	<u>Position</u>	<u>E.O.D. Date</u>
Henry W. Trebesch Jr.	Maintenance man	May 25, 1967
Orville Johnson	Laborer	July 10, 1967
Gordon Wold	Laborer	July 10, 1967

All of the above employees are former landowners. This facilitates operations since they are familiar with the area and working conditions.

Mr. Steven Ullrich served as Student Assistant from May 12, 1967 to August 23, 1967. Steve is a senior in Wildlife Management at the Univ. of Michigan. His principal assignment this summer was a wood duck habitat survey which is summarized in Section V.

## 2. Acquisition

As of December 31, 1967, Appraiser Bill Jensen had obtained options on 158 tracts totalling 17,748 acres or 58% of the 31,560 acre refuge. This is an increase of 5,004 acres over the previous year.

Progress has been excellent and many landowners who had previously indicated they would "NEVER" sell, have now settled.

The attached map shows the tracts under Bureau control or option in red.

## 3. Credits

Sections I, II, V and N.R. forms were prepared by Assistant Mgr. Schranck and the balance by Mr. Carlsen.

## 4. Photographs

Photo credits are due to a wide variety of people. Staff Specialist Les Dundas took 151 and 152. Conservation Education Officer Griffith took 172 and 175. Commercial photographer Jack Huhnerkock, who is a staunch friend of the refuge, donated the negatives for 144, 145, 149, 150, 153, 159 and 179. Division of Refuge Photographer Don Reilley took 157, 158 and 160. Pilot-Biologist John Winship took most of the aerial photos or piloted while the other aerials were taken. He is credited with <sup>129-136</sup>143, 146, 147, 148, 177 and 178. Assistant Manager Schranck took 137, 141, 162, 169, 170 and 171. The balance were taken by the Manager.

# SHERBURNE NATIONAL WILDLIFE REFUGE

SHERBURNE COUNTY, MINNESOTA

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
93° 50'

R. 28 W. R. 27 W.

FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE  
93° 40' R. 27 W. R. 26 W.

45° 35'  
T. 36 N.  
T. 35 N.

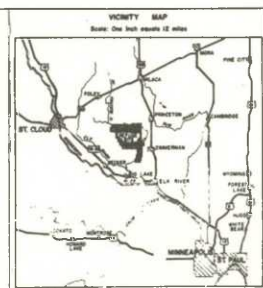
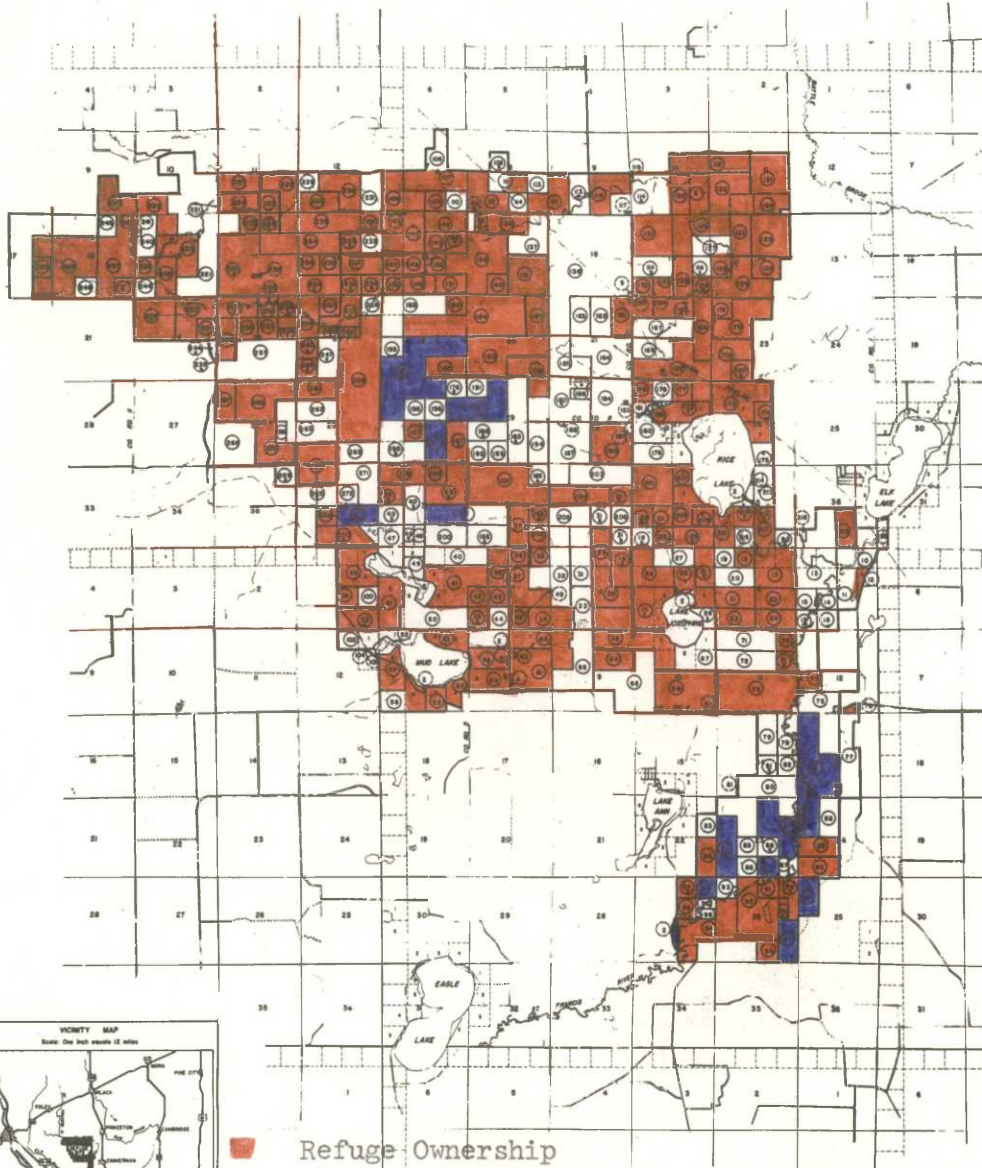
45° 35'  
T. 36 N.  
T. 35 N.

45° 30'  
T. 35 N.  
T. 34 N.

45° 30'  
T. 35 N.  
T. 34 N.

45° 25'  
T. 34 N.  
T. 33 N.

45° 25'  
T. 34 N.  
T. 33 N.



■ Refuge Ownership  
■ Minnesota Conservation Dept. Ownership

R. 28 W. R. 27 W.

93° 40' R. 27 W. R. 26 W.

FOURTH PRINCIPAL MERIDIAN

Scale 0 10 20 30 CHAINS 0 1 2 MILES

TOWNSHIP DIAGRAM

MEAN DECLINATION 1960

COMPILED IN THE BRANCH OF ENGINEERING  
FROM AERIAL PHOTOGRAPHS AND SURVEYS  
BY THE U.S.G.S.

MINNEAPOLIS, MINNESOTA

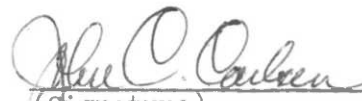
JAN, 1963

39 MIN

401

SIGNATURE PAGE

Submitted by:

  
(Signature)  
John C. Carlsen

Refuge Manager  
(Title)

Date: 2/10/68

Approved, Regional Office:

Date: **APR 26 1968**

  
(Signature)

Regional Refuge Supervisor



Sher-179. 12/2/67. Sherburne Refuge crew from left to right: Manager John Carlsen, Maintenance man Henry Trebesch, Clerk Pat Dunham, Laborer Orville Johnson, Patrolman Milt Elveru, Laborer Gordon Wold, Assistant Manager Barney Schranck, Maintenance man Reuben Mathison, Maintenance Foreman Wes Thompson.

Sher-129. 2/23/67. Aerial view of Sand Dunes State Forest, immediately south of Sherburne Refuge, showing deer feeding operation conducted by Sherburne County Conservation Club. Over population, a lack of habitat, winter feeding and hunting restrictions have developed a problem here.







Sher-130. 7/28/67. View east along path of 7/22/67 tornado where it entered west edge of refuge. Woman was killed at Nystrom residence.



Sher-131. 7/28/67. View west along path of 7/22/67 tornado where it entered Sherburne Refuge. Note extensive destruction of what was wood duck habitat.



Sher-132. 7/28/67. Tornado of 7/22/67 swept across Sherburne Refuge from west to east and levelled Hope Lutheran Church.





Sher-133. 7/28/67. View north across Tract 65 showing complete destruction of timber in path of tornado.



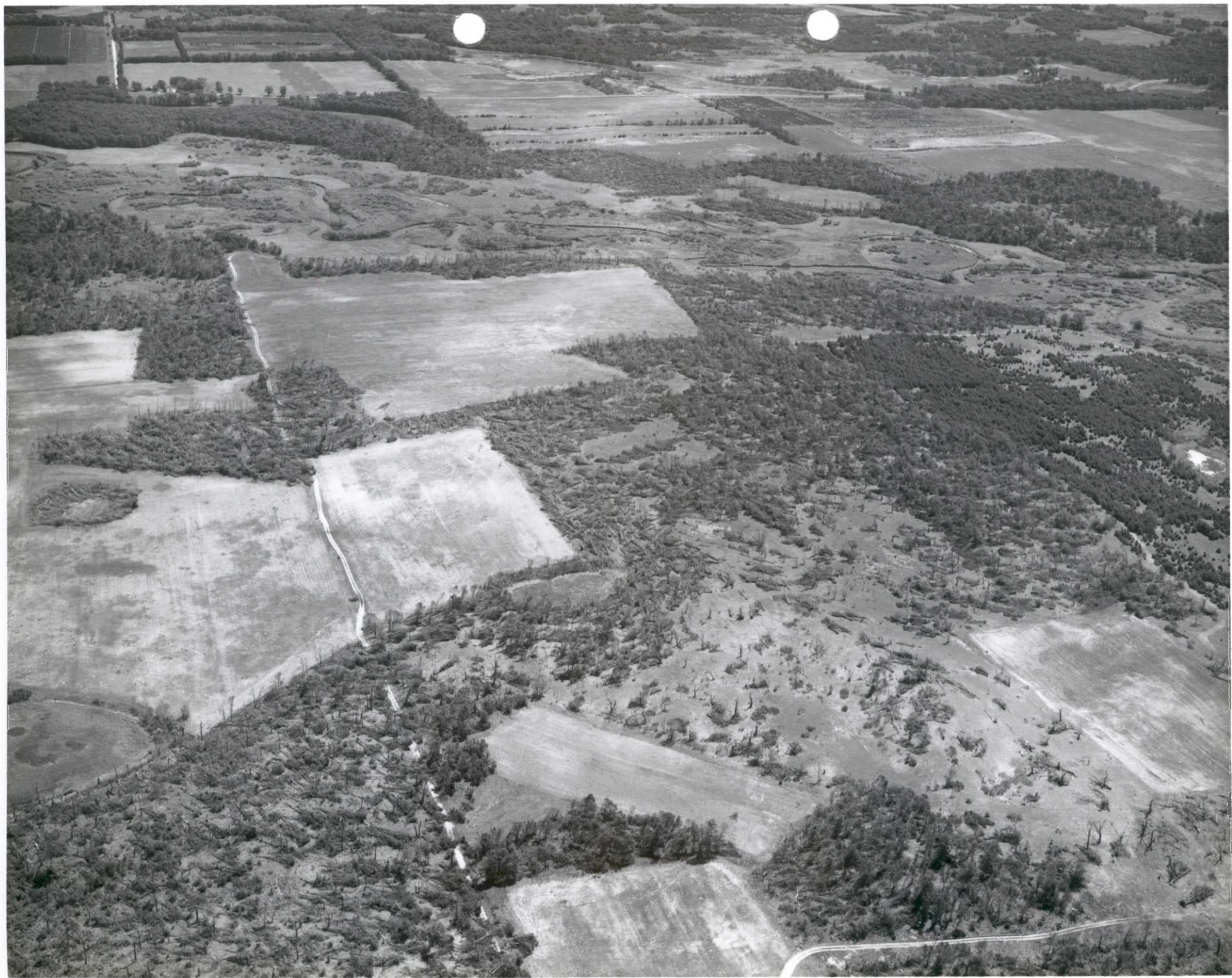


Sher-134. 7/28/67. View southeast across recently renovated Haux tract (64).  
Adjacent Hanson farm lost barn and several outbuildings.



Sher-135. 7/28/67. View southeast across section 2, Orrock Township showing path of July 22 tornado. Damaged timber is a source of disease and insect infestations.





Sher-136. 9/5/67. Mixed stand of white pine and oak on Nikko tract damaged by July 22 tornado. Site has been proposed for recreational development. Major water control structure to be erected at bridge site.







Sher-137. 7/24/67. Remains of Nystrom residence on southwest corner of Sherburne Refuge after tornado of 7/22/67. Mr. Nystrom was injured and his sister killed.



Sher-138. 8/11/67. Minnesota Conservation Federation President Jack O'Konek and Regional Forester Bill Aultfather inspect tornado damage to native white pine stand on Nikko tract. Mr. Aultfather cruised the timber and made recommendations for rehabilitation.



Sher-139 and 140. 8/25/67. Ratzlaff Logging Company of Princeton salvaged over 27 MBF of white pine and oak from the damage area. A considerable cleanup job remains as the area is zoned for recreation.







Sher-141. 4/15/67. View north along County Road 5 in Section 17, Blue Hill Township. Although this road was a main thoroughfare, it was frequently impassable in the spring. Reconstructed road will serve as a combination road and dike.



Sher-142. 7/15/67. Martin Fruth Construction Company was the prime contractor on the County Road 5 job. He used six scrapers plus bulldozers, push cats, graders etc. The 6.3 mile job was completed in 45 working days.

Sher-143. 6/23/67. Start of the reconstruction of County Road 5 through the Sherburne Refuge. High water table and heavy rains made for soupy conditions in low places but the higher sand was easy to handle.





Sher-144 & 145. 7/10/67. Two views of County Road 5 during process of construction. Water will be impounded against dike at places where water shows in roadside ditches.



Sher-146. 9/5/67. Junction of County Roads 5 and 9 following completion of construction. Barrow pits along road were excavated to provide ponds for waterfowl and other wildlife. One in center of picture was especially favored by deer.





Sher-147. 9/5/67. (View West) County Road 5 combination road and dike upon completion. Following installation of controls, over four square miles of waterfowl habitat will be created west of bridge.





Sher-148. 9/5/67. County Road 5 along Orrock Lake. Assistant Manager Schranck's house in foreground. Tornado blew down 25 trees in yard and new fill has been spread to renovate lawn. Ed Schuette tract (44) is across road.





Sher-149. 2/15/67. Members of the Tri-County Conservation Club of Princeton constructed thirty wood duck nesting boxes, the majority of which were erected on the Sherburne Refuge.



Sher-150. 3/15/67. The first shipment of giant Canada geese for the Sherburne Refuge arrived. Patrolman Elveru and Assistant Manager Schranck unloaded them into the propagation facility on tract (144).



Sher-151 & 152. 4/11/67. The Sherburne Refuge giant Canada goose project was featured on WCCO-TV from Minneapolis. Commentator George Rice and Photographer Bob Sjöholm took the footage which was shown on the "Spotlight on the News" program.







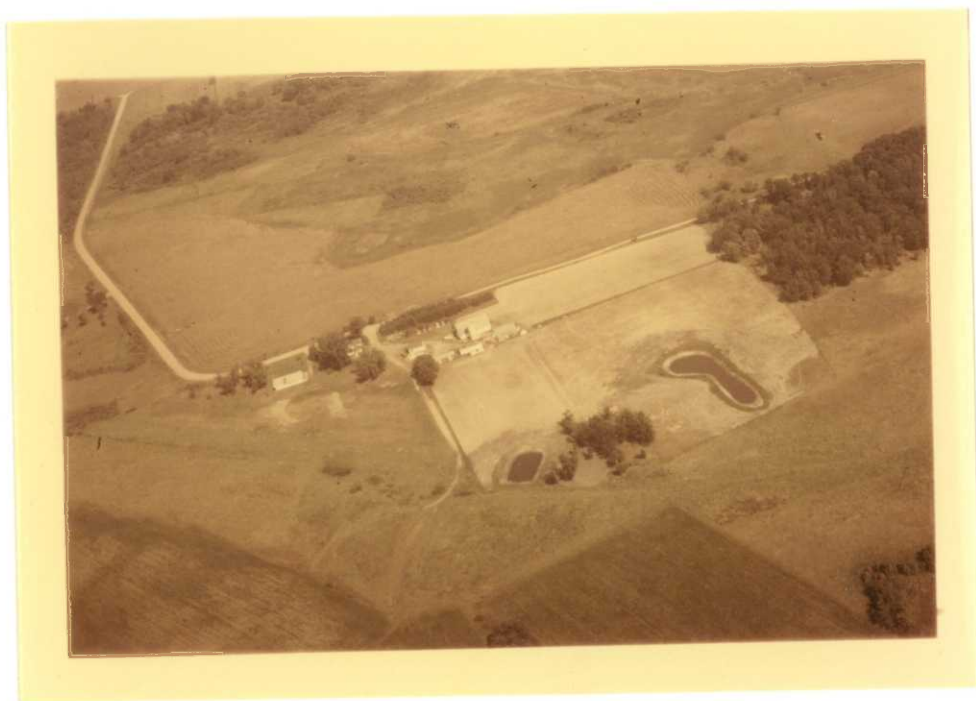
Sher-153. 5/31/67. First brood of giant Canada geese hatched on the Sherburne Refuge.



Sher-154. 9/10/67. Messrs Wold, Johnson and Mathison fencing the new Canada goose breeding pens. There are complete breeding facilities for 16 pairs in 1968, plus pasture and water for the immature birds.



Sher-155. 6/10/67. Two ponds in the goose pen were deepened by dragline to provide more reliable ground water. They have been well utilized by geese.



Sher-156. 8/30/67. Aerial view of maintenance shop, goose facilities and refuge residences in Section 18, Blue Hill Township. Fenced pasture has now been extended to include mowed alfalfa field north of buildings.





Sher-157. 5/8/67. The Natural Resources Committee of the Mpls. Chamber of Commerce toured the refuge to view accomplishments and learn of future plans. This group was helpful in securing approval for the establishment of the Sherburne Refuge.



Sher-158. 5/8/67. The proposed wildlife-oriented recreation zone is being explained to Mpls. Chamber of Commerce members by Manager Carlsen. A canoe launching facility will be built along the St. Francis River to the left and a picnic area in the white pine area on the hill in the background.



Sher-159. 4/15/67. Contractor Merlin Wicktor and Manager John Carlsen examine the 40 inch slide gate installed on Long Pond outlet. This 220 acre impoundment is the first for Sherburne Refuge.



Sher-160. 5/8/67. Manager Carlsen shows the newly developed pool to the Natural Resources Committee of the Mpls. Chamber of Commerce.



Sher-161. 6/10/67. Aerial view north of the newly created pool. Control structure is one mile north at end of outlet ditch. Freshly renovated farmsite visible in lower left hand corner.



Sher-162. 7/10/67. Refuge farming operation on  $NW\frac{1}{4}NW\frac{1}{4}$  section 22, Blue Hill Township. Alfalfa, corn and fall rye grown in alternate strips. Three renovated farmsites are visible in picture.





Sher-163. 3/15/67. Over 200 buildings have been sold on bids. Some are moved, some stripped and others burned. Burning is the cheapest, easiest and most satisfactory way of handling the situation.



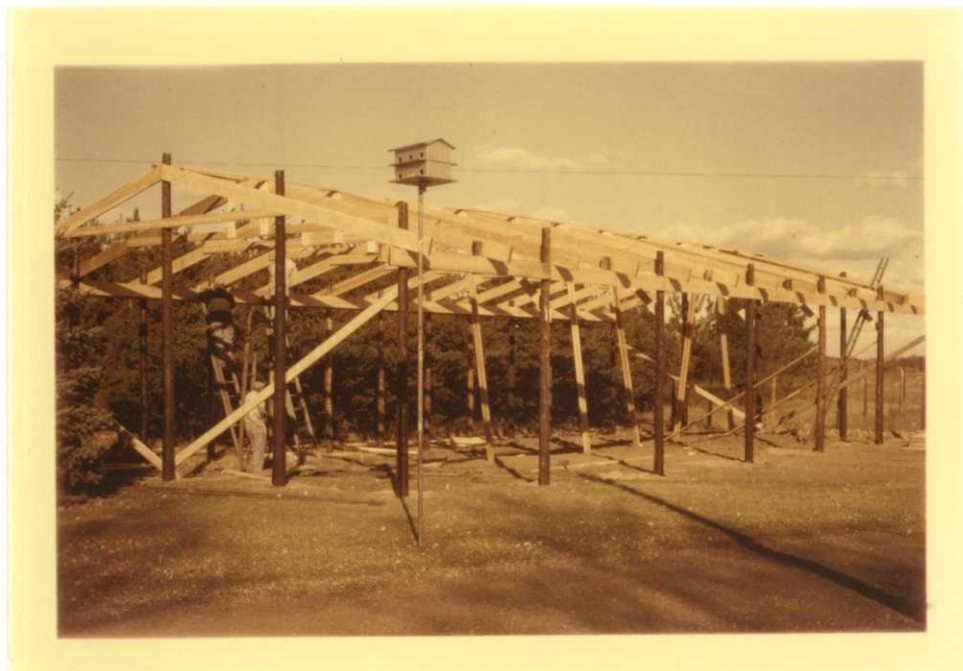
Sher-164. 6/15/67. After the buildings have been disposed of, heavy equipment is moved in to bury debris, foundations and level site. This has made a dramatic change in the scenery and has a psychological impact on the landowners who have not sold.



Sher-165. 5/8/67. S.C.S. personnel Clayton Hart, John McDermid and Roy Lhotka using makeshift refuge equipment to establish native grass seedings on the Sherburne Refuge. Approximately 12 acres of big and little blue-stem, Indian grass and switchgrass were established in 1967.



Sher-166. 8/15/67. Maintenceman Mathison using the new Ford tractor and Nesbit grassland drill which is now being used for native grass, alfalfa and fall rye seedings.



Sher-166 & 167. September, 1967. Two views of the 32 X 74 foot pole shed erected on the maintenance area site at a cost of less than \$1.00 per square foot. This is used for vehicle and equipment storage.







Sher-168 & 169. September, 1967. Assistant Manager Schranck tends one of the clover leaf duck traps at the outlet of Rice Lake. Seventy-seven ducks were banded, mostly wood ducks, plus several hundred repeaters. Few drake wood ducks attain full plumage before departing Sherburne in the fall.





Sher-170 & 171. 8/15/67. Student Assistant Steve Ullrich tends one of the dove traps baited with millet. Recoveries are now coming in (mostly from Texas) from the 143 doves banded.







Sher-172. 11/2/67. This 110 year old log cabin on the Oscar Anderson Tract (59) has been proposed as a historic site. The cabin has been modernized but retains its rustic charm. It can be used as Student Assistant quarters until modified for a historic site.



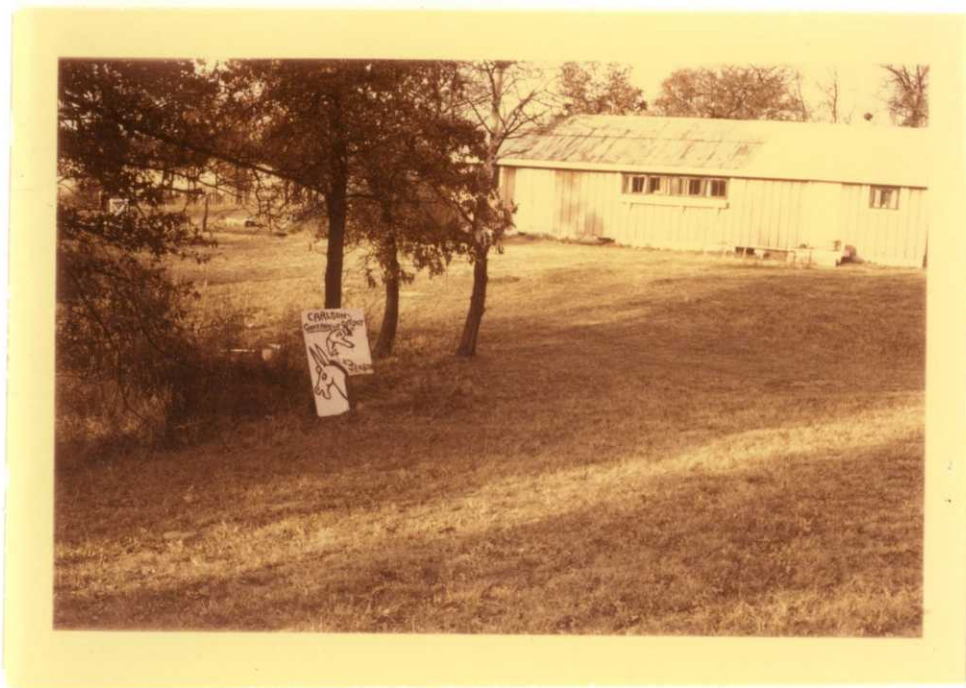
Sher-173. 7/20/67. Minnesota Conservation Department Game Wardens are most cooperative in facilitating the refuge program. From left to right: Wayne Forsythe of Big Lake, Dick Simmons of Princeton and Don McShane of Milaca.



Sher-174. 5/2/67. Maintenance men Mathison and Thompson erect the first refuge entrance sign. Much heavier logs were used on subsequent signs.



Sher-175. 11/2/67. Mr. Art Wilson felt compelled to erect his own sign along County Road 4. The Wilson farm is within the refuge and will be purchased eventually.



Sher-176. 11/2/67. Then there are a few people like Mr. Charles Olson, owner of tract (247,a), who just do not care for the refuge. His sign reads "Carlsen-(dead duck) Jensen-(jackass) Government Get Out." Mr. Olson has problems - too numerous to mention here.

Sher-177. 11/15/67. View southeast across section 26, Blue Hill Township showing extent of 203 acre fire of 11/12/67. Note how roads, ditches and potholes and plowed firebreaks were used to contain fire. Suspected cause - incendiary.





Sher-178. 11/15/67. View south across section 15, Santiago Township showing 43 acre fire of Nov. 14, 1967. Beaver dams in St. Francis River made effective firebreak. Suspected arsonist started fire at 3 A.M.



W A T E R F O W L

REFUGE Sherburne NWR

MONTHS OF Sept 1 TO Dec. 31, 19 67

(1) Species	(2) Weeks of reporting period									
	Sept. 6 1	Sept. 13 2	Sept. 20 3	Sept. 27 4	Oct. 4 5	Oct. 11 6	Oct. 18 7	Oct. 25 8	Nov. 1 9	Nov. 8 10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada					20	-	50	7	7	7
Cackling										
Brant										
White-fronted										
Snow					40	-				
Blue					30	-				
Other										
Ducks:										
Mallard	200	300	500	610	670	150	75	1500	1500	1000
Black	-	-	5	20	20	-				
Gadwall	-	-	-	-	-	-				
Baldpate	-	200	500	750	200	50				
Pintail			75	120	200	-				
Green-winged teal	-	25	75	100	200	50				
Blue-winged teal	175	175	200	200	150	100	50			
Cinnamon teal										
Shoveler										
Wood	220	220	200	200	200	50	25	25	25	15
Redhead										
Ring-necked		20	20	40	100	40	20	75	75	50
Canvasback										
Scaup	25	20	20	20	20	20	20	25	25	10
Goldeneye										
Bufflehead										
Ruddy										
Other										
	(620)	(960)	(1595)	(2060)	(1760)	(460)	(190)	(1625)	(1625)	(1075)
Coot:	100	400	1500	3000	4000	3000	1000	300	50	10

3-1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL  
(Continuation Sheet)REFUGE Sherburne NWRMONTHS OF Sept. 1 TO Dec. 31, 19 67

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	Nov. 15 11	Nov. 22 12	Nov. 29 13	Dec. 6 14	Dec. 13 15	Dec. 20 16	Dec. 27 17	18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada	7	7	7	7	7	7	7	7	999		
Cackling											
Brant											
White-fronted											
Snow									280		
Blue									210		
Other											
Ducks:											
Mallard	15								45,640		
Black									315		
Gadwall											
Baldpate									11,900		
Pintail									2,765		
Green-winged teal									3,150		
Blue-winged teal									7,350		
Cinnamon teal											
Shoveler											
Wood									8,200		
Redhead											
Ring-necked									3,030		
Canvasback											
Scaup									1,435		
Goldeneye											
Bufflehead											
Ruddy											
Other											
Coots:	(15)										
	2								93,534		
					(over)						

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans				Principal feeding areas <u>Rice Lake, Mud Lake, Lake</u>
Geese	<u>1,489</u>	<u>90</u>		<u>Josephine, Dargin Slough and Johnson Slough</u>
Ducks	<u>84,095</u>	<u>2,060</u>		Principal nesting areas <u>Rice Lake, Mud Lake, Lake</u>
Coots	<u>93,534</u>	<u>4,000</u>		<u>Josephine, Dargin Slough and Johnson Slough</u>
				Reported by <u>Barnet W. Schranck, Assistant Refuge Manager</u>

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).



3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS  
(other than waterfowl)Refuge Sherburne NWR Months of Sept. 1 to Dec. 31 19467

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Common Loon	2	9/3	2	9/3	2	9/20				2
American Coot	300	9/3	4000	10/4	5	11/15				4000
Great Blue Heron	23	9/5	23	9/5	1	10/5				30
American Bittern	4	9/2	4	9/2	1	10/2				15
Least Bittern	1	9/20	1	9/20	1	10/1				5
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	2	9/6	6	9/15	1	10/1				20
Common tern	1	9/4	1	9/4	1	9/4				2
Black Tern	10	9/3	10	9/3	2	10/10				30
Spotted Sandpiper	4	9/8	15	10/2	2	10/15				40
Greater Yellow Legs	12	9/6	12	9/6	1	10/1				40
Jack snipe	80	9/18	80	9/18	3	11/6				150

(over)

(1)	(2)		(3)		(4)		(5)		(6)
III. <u>Doves and Pigeons:</u>									
Mourning dove	150	9/1	200	9/25	2	12/15			300
White-winged dove									
IV. <u>Predaceous Birds:</u>									
Golden eagle									
Duck hawk									
Horned owl	2	9/5	2	9/5	1	12/28			10
Magpie									
Raven									
Crow	12	9/6	35	11/5	3	12/15			60
Marsh Hawk	2	9/3	2	9/3	1	12/28			10
Sparrow Hawk	1	9/8	2	9/15	1	11/2			10
Rough-legged Hawk	2	9/10	9	12/28	3	12/30			15
Bald Eagle	2	12/11	2	12/11	2	12/11			2
						Reported by <u>B.W. Schranck, Ass't Refuge Manager</u>			

#### INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)  
 II. Shorebirds, Gulls and Terns (Charadriiformes)  
 III. Doves and Pigeons (Columbiformes)  
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

UPLAND GAME BIRDS

Refuge Sherburne NWR

Months of Sept. 1 to Dec. 31, 1967

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres Per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-Necked pheasant	grassland, revert- ing agricultural lands, marshes & fields 16,058 acres	1,606			50:50	0	0	0	10	Pheasant numbers are at an all time low.
Ruffed grouse	Upland, bottomland timber & scrub, swamp 15,595 acres	45			50:50	50	0	0	350	Birds are up from last year.

## INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS\*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\*Only columns applicable to the period covered should be used.

3-1753  
Form NR-3  
(June 1945)

BIG GAME

Refuge Sherburne NWR

Calendar Year 1967

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions		(7) Estimated Total Refuge Population		(8) Sex Ratio
Common Name	Cover types, total Acreage of Habitat	Number	Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss	Number	Source	At period of Greatest use	As of Dec. 31	
White-tailed deer	cropland 5,822 Upland 14,787 Marsh 9,797	40	40	0	0	0	0	0	0	0	-	240	200	50:50

Remarks:

Reported by B.W. Schranck, Ass'T Refuge Manager



## INSTRUCTIONS

### Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated total number of young produced on refuge.
- (4) REMCVALS: Indicate total number in each category removed during the year.
- (5) LCSSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIC: Indicate the percentage of males and females of each species as determined from field observations or through removals.

3-1755

Form NR-5

60701

## DISEASE

Refuge Sherburne NWRYear 1967

## Botulism

## Lead Poisoning or other Disease

Period of outbreak \_\_\_\_\_

Period of heaviest losses \_\_\_\_\_

## Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized	No. Recovered	% Recovered
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) \_\_\_\_\_

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) \_\_\_\_\_

Condition of vegetation and invertebrate life \_\_\_\_\_

Remarks \_\_\_\_\_

None to Report

Kind of disease \_\_\_\_\_

Species affected \_\_\_\_\_

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered \_\_\_\_\_

Number lost \_\_\_\_\_

Source of infection \_\_\_\_\_

Water conditions \_\_\_\_\_

Food conditions \_\_\_\_\_

Remarks \_\_\_\_\_

None to Report

PUBLIC RELATIONS  
(See Instructions on Reverse Side)

Refuge Sherburne NWRCalendar Year 1967

## 1. Visits

a. Hunting 3900b. Fishing 1000c. Miscellaneous 3000d. TOTAL VISITS 7900

## 1a. Hunting (on refuge lands)

TYPE	HUNTERS	ACRES	MANAGED BY
Waterfowl	<u>3,000</u>	<u>950</u>	
Upland Game	<u>400</u>	<u>31,000</u>	
Big Game	<u>500</u>	<u>31,000</u>	
Other			

Number of permanent blinds 0Man-days of bow hunting included above 80Estimated man-days of hunting on lands adjacent to  
refuge 100

## 1b. Fishing (area open to fishing on refuge lands)

TYPE OF AREA	ACRES	MILES
Ponds or Lakes		
Streams and Shores		<u>36</u>

## 1c. Miscellaneous Visits

Recreation 2700 Official 200Economic Use 100 Industrial -

## 2. Refuge Participation (groups)

TYPE OF ORGANIZATION	On Refuge		Off Refuge	
	NO. OF GROUPS	NUMBER IN GROUPS	NO. OF GROUPS	NUMBER IN GROUPS
Sportsmen Clubs			<u>14</u>	<u>1,215</u>
Bird and Garden Clubs				
Schools	<u>3</u>	<u>128</u>	<u>13</u>	<u>1,725</u>
Service Clubs	<u>1</u>	<u>11</u>	<u>5</u>	<u>290</u>
Youth Groups	<u>1</u>	<u>30</u>	<u>2</u>	<u>90</u>
Professional-Scientific	<u>1</u>	<u>6</u>	<u>1</u>	<u>30</u>
Religious Groups				
State or Federal Govt.	<u>2</u>	<u>57</u>	<u>1</u>	<u>12</u>
Other	<u>2</u>	<u>5</u>	<u>2</u>	<u>56</u>

## 3. Other Activities

TYPE	NUMBER	TYPE	NUMBER
Press Releases	<u>10</u>	Radio Presentations	<u>3</u>
Newspapers (P.R.'s sent to)	<u>8</u>	Exhibits	<u>2</u>
TV Presentations	<u>1</u>	Est. Exhibit Viewers	<u>2,000</u>



## INSTRUCTIONS

Item 1: Total of a, b, and c, equal d.

"Visit" - definition. Any person who is on refuge lands or waters during a day or part thereof for the purpose of: hunting, fishing, bird-watching, recreation, business or economic use, official visit, or similar interest. INCLUDE - those who stop within the refuge while traveling on a public highway because of an interest in the area. EXCLUDE - persons engaged in oil or other industry not directly related to the refuge, persons using refuge as most direct route or principal avenue of traffic, and those boating on navigable rivers or the Intercoastal Canal, unless they stop to observe wildlife on the refuge.

Computing visits. Where actual counts are impractical, "sampling" is used with midweek and week-end samples varied by season or weather. A conversion factor of 3.5 (of passengers per car) is used when accurate figures are not available. Each refuge will develop a conversion factor for boats based on range of usage. Count a camper once for each 24-hour period or fraction thereof.

Item 1a: Acres - of refuge open for each type of hunting.

Managed hunts require check in and out of hunters, issuance of permits, or assignment of blinds.

Other - INCLUDE crow, fox, and similar hunting.

Lands adjacent to refuge. Normally considered within 1 mile or less of boundary, unless established sampling procedures cover a wider area. For big game hunting, the distance may be greater.

Item 1b: Acres of streams open to fishing, if practical; otherwise just miles open. Information on "shores" is primarily for coastal fishing.

Item 1c: Recreation. INCLUDE photography, observing wildlife, picnicking, swimming, boating, camping, visitor center use, tours, etc. TOTAL Recreation, Official, and Economic Use visits under Item 1.

Industrial. INCLUDE persons engaged in industry, i.e., oil industry or factories. EXCLUDE these from Item 1.

Item 2: INCLUDE the "On Refuge" groups in Items 1c and 1. In "Off Refuge" column include only those group meetings in which refuge employees actually participate. EXCLUDE these from Items 1c and 1.

Item 3: Exhibits - INCLUDE displays, fairs, parades, and exhibits OFF the refuge; EXCLUDE those ON.

-1757  
Form NR-7  
Rev. June 1960)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS (1)

Refuge Sherburne NWR Year 1967

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	Amount (Lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
							None to Report						

- (1) Report agronomic farm crops on Form NR-8  
(2) C = Collections and R = Receipts  
(3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic \_\_\_\_\_  
Hedgerows, cover patches \_\_\_\_\_  
Food strips, food patches \_\_\_\_\_  
Forest plantings \_\_\_\_\_

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



3-1758  
Form NR-8  
(Rev. Jan. 1956)

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Sherburne NWR County Sherburne State Minnesota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
Corn	202	8,080 bu.	6	240 bu.	100	4,000 bu.	308		
Rye (for 1968 harvest)	141	3,525 bu.			95	2,375 bu.	236		
Soybeans	15	150 bu.			6	60 bu.	21		
Alfalfa					25	-	25		
								Fallow Ag. Land	

No. of Permittees: Agricultural Operations 9 Haying Operations 0 Grazing Operations 1

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
None				1. Cattle	10	40	\$5.00	4
				2. Other				
				1. Total Refuge Acreage Under Cultivation				590
Hay - Wild				2. Acreage Cultivated as Service Operation				100

DIRECTIONS FOR PREPARING FORM NR-8  
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested - Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested - Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops - Specify the acreage, kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting.

Total Refuge Acreage Under Cultivation - Report total land area devoted to agricultural purposes during the year.

Interior Duplicating Section,  
Washington 25, D.C. 17261

TIMBER REMOVAL

Refuge Sherburne NWR Year 19567

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
Olson's Tree Farms	Sher-2	Bergerson Tract(43) Olafsson Tract(179) Berlin(22) Berlin(266) Mason(259)	152 acres	1,280 Christmas Trees	25¢/tree	\$320.00	Cuttings to take place until 1970, clearcut Scotch pine & leave 100 Norway pine trees per acre.	Scotch & Norway pine Christmas trees
Stzloff Logging & Lumber Co., Inc.	Sher-5	Nikko Tract (17)	1.3 acres	23.34m HF white pine 4.25m HF Oak	\$400.00 Flat Rate	\$400.00	Harvest limited to salvaging white oak pine and oak timber damaged by tornado	White pine and

Total acreage cut over 282 acres Total income \$720.00

No. of units removed B. F. 27.59m HF Method of slash disposal Filed for winter burning

Cords  
Ties  
Christmas trees 1,280



# ANNUAL REPORT OF PESTICIDE APPLICATION

**Sherburne NWR**

Proposal Number

Reporting Year

**Sher-1**

**1967**

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
May 30 - June 15	Quackgrass	Sherburne Refuge farming units planted to corn.	308	Atrazine	616 pounds	2 lbs./acre	water 100 gal./ acre	sprayer on tractor

10. Summary of results (continue on reverse side, if necessary) The first rainfall occurred on June 4 in the amount of .30 inches. Some rain was experienced everyday during the spraying period, but this did not adversely effect the results of the spraying activities. Atrazine may be applied as a pre-emergence spray or as a post-emergence spray until plants are 2-3 inches high. Fields were checked weekly, and good results were noted on cropland units. Percentage of kill was from 85 to 100% on quack grass. Regrowth did not occur. The cost for the atrazine used by cooperators on 269 acres was not a responsibility of the refuge. The refuge used 78 pounds of atrazine on 39 acres of corn; costs for these chemicals amounted to \$180.00. Labor and equipment costs amounted to approximately \$80.00, which brings the total cost to \$260.00.



**ANNUAL REPORT OF PESTICIDE APPLICATION**

Proposal Number

**Sher-2**

Reporting Year

**1967**

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
June 4 - June 8	Corn cutworm	Corn plantings on the following Agri. Units: A-17, A-23, A-30, A-34.	39	Malathion	19.5 pounds	0.5 lbs. per acre	water 10 gals per acre	sprayer on tractor

10. Summary of results (continue on reverse side, if necessary) Percentage kill was close to 90% when the first examination was made on June 15. Subsequent checks were made periodically during the summer showed that a good total kill had resulted. However, it was noted that field edges were invaded by the cutworms within a one week period after the application of the pesticide. Bureau total costs including chemicals, labor and equipment amounted to \$151.00.

## ANNUAL REPORT OF PERSTICIDE APPLICATION

Sherburne NWR

Proposal Number

Reporting Year

Sher-3

1967

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
June 25 - July 15	Tall buttercup	along the St. Francis River in tract 222.	30	MCPA	60 pounds	2 lbs per acre	water 10 gals. per acre	sprayer on tractor and hand spraying

10. Summary of results (continue on reverse side, if necessary) The first rain occurred on July 1 - approximately .50 inches fell. The first field checks were made approximately two days after each spraying. Results seemed excellent with the plants being well wilted. Apparent kill appeared close to 75-85%. Follow up observations were made on July 25, August 3 and August 15. No serious regrowth was noted but some of the younger plants appeared to be recovering from the spray. Percent of real kill was approximately 65 percent. Chemicals were provided free of charge to the refuge by the Sherburne County Weed Commissioner. Labor costs were estimated at \$130.00.

## ANNUAL REPORT OF PERSTICIDE APPLICATION

Sherburne NWR

Proposal Number

Reporting Year

Sher-4

1967

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
June 20 - July 7	Leafy spurge	locations within the boundary of the refuge,	9 acres	Tordon 22k	18 lbs applied	2 lbs./acre	water 10 gals. per acre	Hand sprayer

10. Summary of results (continue on reverse side, if necessary) The first real rain of .77 inches occurred on the 17th of July. Sprayed acres were checked approximately one week after the initial spraying, and two additional checks were made during August. Plants were well dried and brown, and no living spurge plants could be found. The apparent kill was close to 100%. Final determination of the kill results on these spurge infested areas will have to be made next year. This year's operation cost: \$351.00 for the chemicals and \$90.00 for the labor for a total cost of \$441.00.

## ANNUAL REPORT OF PERSTICIDE APPLICATION

Proposal Number

Reporting Year

Sher-5

1967

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
July 1- August 15	Misc. brush and woody plants under electric transmission lines that may cause interruptions to electrical service.	Along transmission lines belonging to the Anoka Electric Cooperative within the refuge that serve people still living within the refuge area.	approx. 3.2 miles transmission line 80 acres	2, 4-D and 2,4, 5-T	280 pounds	3.5 lbs/acre	water- 20 gals. per acre	Truck mounted boom sprayer

## 10. Summary of results (continue on reverse side, if necessary)

This entire spraying operation was carried out by Lake States Tree Service, Inc. for the Anoka Electric Cooperative at no cost to the refuge. Good results were obtained, and nearly 100% kill resulted. Spraying under the transmission lines is normally done only once every three years. At the time this year's spraying was done, the refuge had control of approximately 45% of the land within the approved refuge boundary, and it was felt that spraying could be done this year on the few tracts of refuge owned land. However, by 1970 when spraying will again be carried out, the number of transmission lines within the refuge will have decreased considerably due to acquisition. A planned agreement will be worked out with the Electric Cooperative to discontinue spraying on the refuge, and to initiate a mechanical control program only when it is deemed necessary to insure dependable service to the Cooperative's customers within the refuge.

W A T E R F O W L

REFUGE Sherburne

MONTHS OF May 3 TO July 5, 1967

(1) Species	(2) Weeks of reporting period									
	May <sub>1</sub> <sup>3</sup>	May <sub>2</sub> <sup>10</sup>	May <sub>3</sub> <sup>17</sup>	May <sub>4</sub> <sup>24</sup>	May <sub>5</sub> <sup>31</sup>	June <sub>6</sub> <sup>7</sup>	June <sub>7</sub> <sup>14</sup>	June <sub>8</sub> <sup>21</sup>	June <sub>9</sub> <sup>28</sup>	July <sub>10</sub> <sup>5</sup>
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	2	2	2							
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	300	200	140	48	48	58	60	65	70	80
Black	10	2	2							
Gadwall										
Baldpate	25									
Pintail	30									
Green-winged teal	25	25	6	5	5	5	5	5		
Blue-winged teal	300	150	129	82	82	82	82	90	90	95
Cinnamon teal										
Shoveler	25									
Wood	20	20	10	5	5	20	20	40	50	80
Redhead										
Ring-necked	200	50	16							
Canvasback										
Scaup	200	100	25	19	19	19	19	19	19	20
Goldeneye										
Bufflehead										
Ruddy	1,135	547	328	159	159	184	186	219	229	275
Other										
Coot:	300	100	76	20	10	10	10	10	10	15



3-1750a

Cont. NR-1

(Rev. March 1953)

W A T E R F O W L  
(Continuation Sheet)

REFUGE SherburneMONTHS OF July 12 TO August 30, 1967

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen: total	
	July 12 11	July 19 12	July 26 13	Aug 2 14	Aug 9 15	Aug 16 16	Aug 23 17	Aug 30 18			
Swans:											
Whistling											
Trumpeter											
Geese:											
Canada									42		
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	90	100	120	130	150	150	150	150	14,763	4	102
Black									98		
Gadwall											
Baldpate									25		
Pintail									30		
Green-winged teal									567		
Blue-winged teal	110	120	130	140	150	150	150	175	16,149	6	208
Cinnamon teal											
Shoveler											
Wood	120	150	175	175	180	200	220	220	11,970	7	243
Redhead											
Ring-necked									1,862		
Canvasback											
Scaup	20	20	25	25	25	25	25	25	4,543	1	41
Goldeneye											
Bufflehead											
Ruddy	(340)	(390)	(450)	(470)	(505)	(525)	(545)	(570)	50,032		
Other											
Coots:	15	15	15	15	15	15	15	15	5,187	1	14
					(over)						



3-1751

Form NR-1A  
(Nov. 1945)MIGRATORY BIRDS  
(other than waterfowl)Refuge Sherburne NWRMonths of May 3to August 3019567

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Common Loon	2	5/3	2	Whole period	2	8/30	-	-	-	2
American Coot	300	5/3	300	5/30	75	8/30		1	14	400
Great Blue Heron	24	5/3	36	6/20	24	8/30	2	6	5	50
American Bittern	2	5/3	10	6/22	6	8/30				25
Least Bittern	2	6/3	2	6/3	1	8/15				10
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	10	5/3	25	6/20	10	8/30		6	10	50
Common tern	2	5/3	2	Whole period	2	8/30				10
Black tern	30	5/6	60	6/2	25	8/30	2	15	50	100
Spotted sandpiper	25	8/6	25	8/6	6	8/22				100
Greater yellow legs	10	8/9	10	8/9	4	8/28				100
Jack snipe	5	5/10	30	8/30	30	8/30		5	10	100

(over)

(1)	# (2) Date		# (3) Date		# (4) Date		Production (5)		Total (6)
III. <u>Doves and Pigeons:</u>									
Mourning dove	All year		500	5/3	200	8/22	100	200	500
White-winged dove									
IV. <u>Predaceous Birds:</u>									
Golden eagle									
Duck hawk									
Horned owl	All year		2	6/25	1	8/22	2	2	10
Magpie									
Raven									
Crow	All year		50	5/3	25	8/30	6	15	75
Marsh hawk	25	5/3	25	5/3	2	8/20	3	6	30
Sparrow hawk	15	5/3	150	7/20	4	8/30	6	10	250
Rough-legged hawk	1	5/10	1	5/10	1	8/26			3
Reported by B.W. Schranck, Ass't. Ref. Mgr.									

#### INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)  
 II. Shorebirds, Gulls and Terns (Charadriiformes)  
 III. Doves and Pigeons (Columbiformes)  
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Sherburne NWR For 12-month period ending August 31, 1967

Reported by B.W. Schranck Title Assistant Refuge Manager

(1) Area or Unit Designation	(2) Habitat		(3) Use-days	(4) Breeding Population	(5) Production
	Type	Acreage			
1	Crops	2,186.4	Ducks	29,508	138
	Upland	4,380.7	Geese	80	
	Marsh	3,373.7	Swans		
	Water	0	Coots	5,180	
	Total	9,940.8	Total	34,768	138
-----					
2	Crops	834.7	Ducks	28,138	80
	Upland	1,253.0	Geese		212
	Marsh	1,095.9	Swans		
	Water	17.9	Coots	4,940	
	Total	3,201.5	Total	33,078	80
-----					
3	Crops	706.6	Ducks	50,096	49
	Upland	3,069.4	Geese	42	204
	Marsh	2,182.6	Swans		
	Water	215.7	Coots	8,795	4
	Total	6,174.3	Total	58,933	53
-----					
4	Crops	983.8	Ducks	33,454	51
	Upland	2,104.4	Geese	840	18
	Marsh	1,447.4	Swans		
	Water	250.2	Coots	5,876	
	Total	4,785.8	Total	40,170	51
-----					
5	Crops	556.5	Ducks	7,034	8
	Upland	1,436.2	Geese		22
	Marsh	482.9	Swans		
	Water	0	Coots	1,235	
	Total	2,475.6	Total	8,269	8
-----					
6	Crops	554.0	Ducks	23,332	10
	Upland	2,543.0	Geese		
	Marsh	1,214.7	Swans		
	Water	12.2	Coots	4,096	
	Total	4,323.9	Total	27,428	10
-----					
	Crops	5,822	Ducks	171,562	336
	Upland	14,787	Geese	962	594
	Marsh	9,797	Swans		
	Water	496	Coots	30,122	4
	Total	30,902	Total	202,646	340

(over)



## INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) Area or Unit: A geographical unit which, because of size; terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity ~~apart~~ from other areas in the refuge census pattern. The combined estimated acreages of all units should be equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (2) Habitat: Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) Use-days: Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) Breeding Population: An estimate of the total breeding population of each category of birds for each area or unit.
- (5) Production: Estimated total number of young raised to flight age.

UPLAND GAME BIRDS

Refuge Sherburne NWR

Months of May 3 to August 30, 1967

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
		Acres Per Bird	Number broods observed	Estimated Total		Hunting	For Re- stocking	For Research		
Common Name	Cover types, total acreage of habitat				Percentage				Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant	grassland, revert- ing agricultural lands, marshes & fields 16,058 acres		1	6	50:50	0	0	0	20	Pheasant numbers are at an all time low.
Ruffed grouse	Upland, bottom land timber & scrub, swamp 15,595 acres		4	60	50:50	0	0	0	300	Birds up 30% over last year.

## INSTRUCTIONS

### Form NR-2 - UPLAND GAME BIRDS\*

- (1) SPECIES: Use correct common name.
- (2) DENSITY: Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
- (3) YOUNG PRODUCED: Estimated number of young produced, based upon observations and actual counts in representative breeding habitat.
- (4) SEX RATIO: This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available.
- (5) REMOVALS: Indicate total number in each category removed during the report period.
- (6) TOTAL: Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons.
- (7) REMARKS: Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested.

\*Only columns applicable to the period covered should be used.

W A T E R F O W L

REFUGE Sherburne NWR

MONTHS OF January 1 TO March 8, 19 67

(1) Species	(2) Weeks of reporting period									
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	NO WATERFOWL PRESENT									
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard										
Black										
Gadwall										
Baldpate										
Pintail										
Green-winged teal										
Blue-winged teal										
Cinnamon teal										
Shoveler										
Wood										
Redhead										
Ring-necked										
Canvasback										
Scaup										
Goldeneye										
Bufflehead										
Ruddy										
Other										
Coot:										

3-1750a  
 Cont. NR-1  
 (Rev. March 1953)

WATERFOWL  
 (Continuation Sheet)

REFUGE Sherburne

MONTHS OF March 15 TO April 26, 1967

(1) Species	(2) Weeks of reporting period							(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total
	Mar 15 11	Mar 22 12	Mar 29 13	Apr 5 14	Apr 12 15	Apr 19 16	Apr 26 17	26 18	
Swans:									
Whistling									
Trumpeter									
Geese:									
Canada			2	2	2	2	2	70	
Cackling									
Brant									
White-fronted			10					10	
Snow									
Blue									
Other									
Ducks:									
Mallard	2	200	450	550	450	450		14,714	
Black			10	20	10	10		350	
Gadwall									
Baldpate			50	50	50	40		1,330	
Pintail			30	60	40	40		1,190	
Green-winged teal			20	150	125	125		2,940	
Blue-winged teal			10	80	300	400		790	
Cinnamon teal									
Shoveler			50	50	50	25		1,225	
Wood			10	20	20	20		490	
Redhead				50	50			700	
Ring-necked			100	300	250	250		6,300	
Canvasback									
Scaup			100	300	400	400		8,400	
Goldeneye			50	80	20			1,050	
Bufflehead			2	100	30	20		1,064	
Ruddy									
Other									
Coots:									
			5	200	400	400		7,035	
				(over)					



	(5)	(6)	(7)	
	Total Days Use	Peak Number	Total Production	SUMMARY
Swans				Principal feeding areas Rice Lake, Mud Lake, Lake
Geese	80	2	20	Josephine, Durgin Slough, Johnson Slough
Ducks	40,543	1,810		Principal nesting areas Rice Lake, Mud Lake, Lake
Coots	7,035	400		Josephine, Durgin Slough, Johnson Slough
				Reported by <u>Barnet W. Schranck, Ass't. Refuge Manager</u>

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751

Form NR-1A  
(Nov. 1945)MIGRATORY BIRDS  
(other than waterfowl)

Refuge.....Sherburne.....

Months of January 1 to April 30 1967.

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Common loon	2	4/8	2	4/8	2	4/30				2
American coot	5	4/5	400	4/26	400	4/30				600
Great Blue Heron	1	3/24	24	4/15	24	4/30	2			50
Black Crowned night heron	1	4/15	2	4/20	1	4/30				10
American bittern	2	4/18	5	4/20	2	4/30				30

(over)

(1)	# (2) Date		# (3) Date		# (4) Date		Production (5)		Total (6)
III. <u>Doves and Pigeons:</u>									
Mourning dove	All Year		150	3/25	25	4/30			300
White-winged dove									
IV. <u>Predaceous Birds:</u>									
Golden eagle									
Duck hawk									
Horned owl									
Magpie									
Raven									
Crow	All Year		200	3/19	30	4/30			400
Marsh hawk	1	3/25	15	4/30	15	4/30			30
Sparrow hawk	1	3/3	12	4/15	2	4/30			20
Rough-legged hawk	1	2/12	3	4/6	1	4/10			3
Bald Eagle	1	2/2	1	2/2	1	2/2			1
Snowy Owl	1	2/28	1	4/28	1	4/28			1
						Reported by B.W. Schranck, Ass't Refuge Mgr.			

#### INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)  
 II. Shorebirds, Gulls and Terns (Charadriiformes)  
 III. Doves and Pigeons (Columbiformes)  
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1752  
Form NR-2  
(April 1946)

UPLAND GAME BIRDS

Refuge Sherburne NWR

Months of January 1 to April 30, 1967

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres Per Bird	Number broods observed	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked pheasant	grassland reverting agricultural lands, marshes and fields 16,058 acres				50:50	0	0	0	20	Pheasant numbers are at an all time low.
Ruffed grouse	Upland, bottom land and timber and scrub swamps 15,595 acres				50:50	0	0	0	200	Some winter loss occurred during this period. Strip census not used during this period.

## INSTRUCTIONS

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3-1754  
Form NR-4  
(June 1945)

SMALL MAMMALS

Refuge Sherburne NWR Year ending April 30, 1967

(1) Species	(2) Density	(3) Removals						(4) Disposition of Furs					(5) Total Popula- tion	
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator * Control	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Striped Skunk	Entire Refuge 30,900 acres	154	0	0	0	0	0							200
Raccoon	Entire Refuge 30,900 acres	154	0	0	0	0	0							200
Red Fox	Entire Refuge 30,900 acres	618	15	0	0	0	0							50
Gray Squirrel	Upland timber-8,142	27												300
Fox Squirrel	Upland timber-8,142	108												75
Red Squirrel	Upland timber-8,142	203												40

\* List removals by Predator Animal Hunter

\* List removals by Predator Animal Hunter

REMARKS:

Reported by B.W. Schranck, Ass't. Refuge Manager

# INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
  - (2) DENSITY: Applies particularly to those species considered in removal programs. Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottom land hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks.
  - (3) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
  - (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
  - (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.